

Supplement: Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients / Conjunctivitis

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This document contains supplementary information to the Conjunctivitis section of the Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients.

A. Background

The *Guideline for infection control in health care personnel, 1998*¹ (1998 Guideline) recommended restricting symptomatic healthcare personnel (HCP) with conjunctivitis for the duration of symptoms. Importantly, the majority of healthcare-related outbreaks of conjunctivitis are epidemic keratoconjunctivitis (EKC) outbreaks.²⁻⁵ EKC is a highly contagious and more severe type of viral conjunctivitis often caused by adenovirus serotypes 8, 37, and 64.^{6,7} These serotypes may additionally have a longer duration of shedding and a longer duration of symptoms.^{8,9} Since the publication of the 1998 Guideline recommendation, conjunctivitis-related outbreak reports described the implementation of HCP work restrictions for both a discrete number of days¹⁰⁻¹³ (e.g., 14) and the duration of signs and symptoms^{4,14-20} with inconsistent effects on continued transmission. The use of a 14-day work restriction seemed to be based on the duration of viral shedding of adenovirus, specifically EKC.²¹ Therefore, the objective of this systematic review was to identify the best available evidence on the use of the resolution of symptoms or a specified number of days as the criteria for allowing infected HCP to return to work, to prevent the transmission of adenoviruses that cause conjunctivitis among healthcare personnel and patients.

B. Recommendation and Evidence to Decision Framework

1998 Recommendation¹

1. *Text:* Infected personnel should not provide patient care for the duration of symptoms after onset of epidemic keratoconjunctivitis or purulent conjunctivitis caused by other pathogens.
2. *Table 3:* Conjunctivitis: restrict from patient contact and contact with the patient's environment until discharge ceases. *Category II*
3. *Recommendation:* Restrict personnel with epidemic keratoconjunctivitis or purulent conjunctivitis caused by other microorganisms from patient care and the patient's environment for the duration of symptoms. If symptoms persist longer than 5 to 7 days, refer personnel to an ophthalmologist for evaluation of continued infectiousness. *Category IB*

Recommendation Update:

1. For healthcare personnel with suspected or confirmed infectious conjunctivitis, including epidemic keratoconjunctivitis, exclude from work for the duration of their symptoms.

Table 1. GRADE Evidence to Decision Framework: Adenoviral Conjunctivitis

	Health system and public health recommendations
Benefits & harms	The evidence suggests • work restriction for the duration of symptoms^{4,14-20} may be effective for the prevention or control or transmission of adenoviruses that cause conjunctivitis when implemented in conjunction with other infection prevention and control measures, and • work restriction for 14 days^{2,11,22,23} may be insufficient to prevent or control transmission of adenoviruses that cause conjunctivitis, particularly EKC, especially in the context of an outbreak.
Certainty of the evidence	There is very low certainty in the evidence for the use of symptom-based criteria, and against the use of duration-based criteria to prevent or control transmission of adenoviruses that cause conjunctivitis.
Balance	The balance of the evidence is not sufficient to change the current recommendation.

	Health system and public health recommendations
Resource use	- There is very low confidence in the evidence from two studies^{19,20} reporting on the resource or personnel costs associated with adenovirus outbreaks in healthcare settings. Evidence from one study²⁰ measuring costs associated with a nosocomial EKC outbreak found that the greatest expense was the loss of productivity due to infected staff absenteeism. The other study¹⁹ reported that an EKC outbreak among eye clinic and neonatal intensive care unit (NICU) staff resulted in 180 workdays lost among 12 HCP furloughed for the duration of symptoms, an average of 30 hours spent performing laboratory duties, and over 230 hours spent among the hospital's infection control committee members. Additionally, this study¹⁹ noted the financial burdens associated with the consumption of laboratory and cleaning materials. - There is very low confidence in the indirect evidence from one cost savings analysis¹⁸ suggests that using polymerase chain reaction (PCR) testing to guide the implementation of symptom-based work restrictions resulted in an estimated annual savings of \$442,073 in 2020 United States Dollars. HICPAC expects that these savings could be larger if PCR testing is not implemented, and the duration of work restrictions is guided by symptoms alone. The use of signs and symptoms to guide the duration of work restrictions, when compared with standard duration (e.g., 14 days) may support facilities ability to maintain adequate staffing ratios and provide patient-centered care.
Population- & setting-specific differences	Data were insufficient to support population-specific sub-analyses; however, the use of signs and symptoms supports maintenance of appropriate staffing levels by returning HCP to work sooner if their symptoms resolve, ensuring sufficient care for patients across different settings, populations, and needs.
Acceptability	No review of acceptability was performed. However, the Workgroup discussed acceptability and determined that this approach is likely acceptable because it is the existing standard of care, and it allows for tailoring the duration of work restrictions to the individual HCP while preventing transmission within facilities. This added flexibility allows HCP to return to work earlier than 14 days if their symptoms have ended.
Feasibility	No review of feasibility was conducted. However, the Workgroup discussed feasibility and determined that the recommendation is likely feasible because it remains unchanged. Further, the symptom-based criteria applies across conjunctival pathogens and is applicable in settings where diagnostic testing is not routinely conducted for conjunctivitis.
Intentional vagueness	- Infectious conjunctivitis is left intentionally vague to encompass the range of symptomatic bacterial, viral, or in rare instances, fungal causes of eye infections. - Conjunctivitis symptoms include a range of manifestations that are not specified in the recommendation but are defined in the supporting narrative.

C. Methods

C.1. Key Question Development

The Key Question was developed by occupational health, infectious disease, and systematic review methodology subject matter experts using the PICO framework²⁴ (Population, Intervention, Comparator, and Outcome). The Key Question used to guide the literature review is:

For previously healthy adults with adenoviral conjunctivitis working in healthcare settings, does work restrictions for duration of symptoms, compared to work restrictions for 14 days, prevent transmission of adenoviruses that cause conjunctivitis in healthcare settings?

C.2. Literature Search

A CDC informationist (J.T.) developed search strategies from the Key Question and PICO criteria, and performed the search in MEDLINE, EMBASE, CINAHL, Scopus, Cochrane Library, and the Public Health Database from the start of each database to January 14, 2026. Search strategies and results are provided in [Table 6](#).

C.3. Study Selection

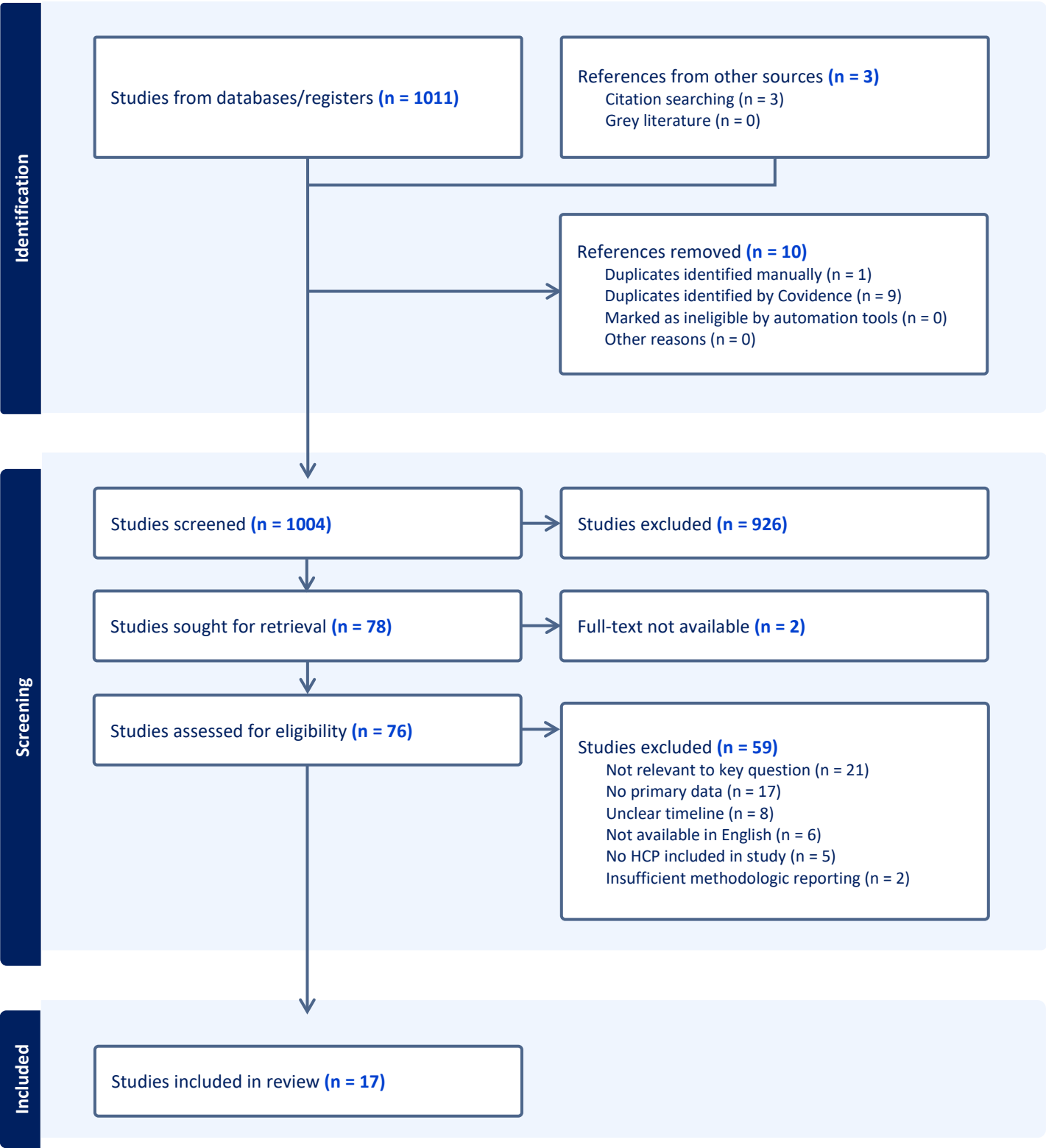
Results of the literature searches were uploaded into EndNote 21 (Clarivate Analytics©, Thomson Reuters, New York, NY, USA), duplicate records were removed, and unique titles and abstracts were uploaded to Covidence (Veritas Health Innovation Ltd., Melbourne, VIC, Australia) where a second round of deduplication was conducted. Two reviewers (D.O.S., J.H., K.T.R., S.S., M.D., C.S., or E.C.S.) independently screened all titles and abstracts and removed

irrelevant references. Relevant full texts were screened independently by two reviewers (D.O.S., J.H., K.T.R., S.S., M.D., C.S., or E.C.S.) and disagreements were resolved by consensus. All studies were screened according to the pre-identified exclusion criteria below, and results of the study selection process are provided in *Figure 1*.

Criteria for excluding studies from the literature review include:

1. No full text available;
2. Not available in English;
3. Not relevant to key question;
4. No primary data;
5. No healthcare personnel (HCP) included in study;
6. Insufficient methodologic reporting (i.e., meeting abstract or poster); or
7. Unclear timeline.

Figure 1. Results of the Study Selection Process



C.4. Data Extraction, Study Assessment, and Synthesis

Data from studies meeting inclusion criteria were independently extracted by two reviewers using a standardized Microsoft Excel (2021) form, and differences were reconciled by discussion. Extracted data included study characteristics, work restriction definitions, and the outbreak duration (*Table 3*). Outcome data were extracted as presented in the studies or calculated using data provided. The risk of bias for each study was assessed using a tool developed by the Division of Healthcare Quality Promotion at the Centers for Disease Control and Prevention, and biases of concern were recorded in the evidence tables. The signaling questions used to assess study conduct and risk of bias and results are presented in [Table 5](#). The evidence was narratively synthesized for the outcomes of interest (transmission of adenoviruses that cause conjunctivitis or EKC) and stratified by the duration of work restriction.

C.5. GRADE-ing and Recommendation Development

Findings were narratively summarized. The strength, direction, consistency, and directness were assessed for each outcome using the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) approach.²⁵ Once the confidence in the evidence was determined for the body of evidence, the GRADE Evidence-to-Decision Framework was used to guide the development of recommendations using the population perspective to make health system decisions.^{26,27}

C.6. Expert Review and Public Input

Draft recommendations were reviewed at a public meeting of the Healthcare Infection Control Practices Advisory Committee (HICPAC) on June 8, 2023. The results of this review and the associated narrative and draft recommendations were available for review and public comment on [regulations.gov](https://www.regulations.gov) for a period of 60 days ending on February 9, 2026. The public comment period was announced in the Federal Register on December 11, 2025. Responses to relevant public comments received are presented in [Table 7](#). The final Guideline Section and this Review will be uploaded to the CDC website.

D. Summary of Evidence

D.1. Narrative Summaries of Evidence

The study selection process is summarized in [Figure 1](#) and study characteristics, work restriction definitions, and the outbreak duration are presented in [Table 3](#). The systematic literature review identified 17 articles reporting on 13 studies, including two quasi-experimental before-after^{2,15-18,22} and 11 descriptive studies,^{3-5,10-14,19,20,23} where work restrictions were implemented as one of multiple sequential or concurrent infection control measures to manage an outbreak of adenoviral conjunctivitis among healthcare personnel (HCP) and patients. None of the identified studies were cluster randomized controlled trials comparing different work restrictions for conjunctivitis. The durations of HCP work restrictions implemented across studies included 1) duration of symptoms,^{4,14-20} 2) at least 14^{3,13} or 15 days^{10,12} or duration of symptoms, whichever is longer, and 3) exactly 10⁵ or 14 days.^{2,11,22,23} In all studies, work restrictions were implemented in conjunction with multiple infection control interventions. The number and types of infection control interventions implemented with work restrictions varied across studies. Possible adverse events attributable to the implementation of work restrictions, such as loss of income and stigma, were not assessed in any study. Two studies reported across six articles^{2,15-18,22} spanning nearly three decades, examined the impact of three policy changes in one ophthalmological institute of academic hospital.

There is very low confidence in the evidence of effectiveness of using sign and symptom-based work restrictions to control transmission from HCP to other HCP or patients. Five studies, four outbreak reports^{4,14,19,20} and one quasi-experimental before-after study,¹⁵⁻¹⁸ reported the implementation of work restrictions for the duration of adenoviral conjunctivitis symptoms. The before-after study¹⁵⁻¹⁸ reported on seven years of HCP viral conjunctivitis outcomes after implementation of a “red-eye employee triage system” that included a policy change from 14 days to duration of symptoms. This study defined outbreaks as two or more employees from the same department seen within two weeks in the occupational health department for conjunctivitis caused by the same adenovirus type. After implementation of the policy change, there were no outbreaks of adenoviral conjunctivitis despite an increase in proportion of employees testing positive for both adenovirus and any serotypes causing EKC. It is possible that outbreaks among patients or involving only one HCP were missed as the study did not report these outcomes. The intervention included PCR testing and prospective serotyping of all employees suspected of viral conjunctivitis and the implementation of minimum work restrictions based upon test results. Of the employees tested for viral conjunctivitis, only 8.6% were positive for adenovirus and among those 31.5% had EKC genotypes. Employees with EKC were furloughed for a minimum of 14 days, with return to work determined by duration of symptoms, confounding the use of 14 days as marker for returning to work. Employees could return to work once they were cleared by the occupational health department and were assessed for a lack of pain, tearing, discharge, and redness. Two outbreak reports^{4,14} implemented work restrictions for the duration of self-reported symptoms in response to epidemic keratoconjunctivitis (EKC) outbreaks in a NICU¹⁴ and an ophthalmology clinic.⁴ One outbreak study¹⁹ reported symptomatic HCP were sent home until symptoms resolved, and those remaining PCR-positive despite symptom resolution were approved for work while wearing masks and face shields. Another outbreak study²⁰ reported the approval of HCP absence due to infection during an EKC outbreak in a long-term care facility, and provided the number of lost productivity days for HCP, indicating that HCP were absent for the duration of symptoms. Three studies^{4,14,20} reported that the outbreaks ended following the concurrent implementation of multiple infection control measures which included restriction of symptomatic HCP from work until resolution of symptoms. None of these three outbreak reports conclusively implicated infected HCP as an outbreak source. In one outbreak,¹⁴ transmission was associated with visits from ophthalmologists specializing in retinopathy of prematurity. In another outbreak,⁴ environmental swabs suggested an exam chair, slit lamp chin rest, and applanation tonometer may have contributed to transmission. And the third outbreak²⁰ suggested transmission was caused by contaminated fingers, clothing, and environmental surfaces, and preventive measures emphasized the importance of hand hygiene and standard precautions. In the fourth outbreak,¹⁹ transmission continued despite work restrictions and only ended following the implementation of environmental sampling, enhanced environmental disinfection, contact precautions, increased hand hygiene, symptomatic patient cohorting through a specific secretary to a designated patient room, and a 9-day clinic closure due to a holiday. There were no known transmissions to NICU infants undergoing eye examinations,

suggesting transmission among staff may have occurred during interactions outside of patient care. Of note, this outbreak included 12 symptomatic HCP and resulted in 180 lost workdays, 30 hours of laboratory work, 230 hours of infection control committee member worktime, additional time for enhanced environmental disinfection, and the use of laboratory and cleaning materials.

There is very low confidence in the evidence suggesting work restrictions for at least 14 or 15 days are inadequate to prevent or control transmission from HCP to patients and other HCP. Four descriptive outbreak studies reported the implementation of work restrictions for at least 14^{3,13} or 15 days^{10,12} in response to EKC outbreaks in NICUs^{10,12,13} or an ophthalmological institute.³ Three outbreak studies extended work restriction beyond 14³ or 15 days^{10,12} until HCP were free of symptoms, while one outbreak study¹³ extended work restrictions for the duration of adenovirus positivity. In all four outbreaks, transmission ended not because of the implementation of HCP work restrictions, but rather it ended only after implementation of additional infection control measures including enhanced environmental cleaning,³ improved disinfection and sterilization of blepharostats¹³ or retinopathy of prematurity tools,¹³ hand hygiene training for staff,^{3,12} or screening of asymptomatic HCP.¹⁰

The evidence is inconclusive for the effectiveness of work restrictions of 10 or 14 days to prevent or control transmission from HCP to other HCP or patients. One before-after study^{2,22} and three outbreak reports^{5,11,23} reported the implementation of work restrictions for 10⁵ or 14 days^{2,5,22,23} exactly. One before-after study^{2,22} implemented work restrictions for 14 days as part of an infection control program and reported a reduction in transmission of adenoviruses that cause EKC when compared to no work restriction policy. Three outbreak studies reported implementing work restrictions for 10⁵ or 14 days^{11,23} to control outbreaks of EKC in ophthalmology centers^{5,23} or a NICU.¹¹ In one outbreak,⁵ there were no additional cases identified in the month following the implementation of multiple infection control interventions, including work restrictions for 10 days. However, the same eye clinic identified a second cluster of EKC cases several months later that were found to be associated with a specific physician. A discrepancy between reported adherence to infection control measures and the purchase of materials such as gloves and bleach suggested low compliance may have led to transmission in both clusters. In the other two outbreaks,^{11,23} EKC transmission continued after implementation of multiple infection control measures including work restrictions for 14 days. One outbreak¹¹ ended following the implementation of enhanced environmental cleaning, improved disinfection and sterilization methods, and screening of all NICU patients. The other²³ ended after establishing a triage room to examine all patients for possible infection upon entry, specifying an examination 'red room' for suspected cases, and treating paper towels used by EKC patients as infectious and discarding in color-coded infectious-waste containers. Of note, only one study²³ specified that work restrictions were implemented for 14 days from symptom onset in the second eye.

D.2. Discussion

Overall, there is very low confidence in the evidence retrieved by the literature review on the optimal duration of work restriction for HCP with suspected or confirmed conjunctivitis. Therefore, the current recommendation for work restriction for duration of symptoms was retained as a pragmatic operational approach. While work restrictions for infected HCP are a critical intervention to interrupt transmission, HCP were not considered a source in six^{4,11-13,20,23} of the 11 outbreaks identified by the systematic review. The majority of outbreaks occurred in ophthalmology clinics and NICUs, settings which involve eye exams and reusable, shared equipment (e.g., tonometer, slit lamp). Transmission was often associated with eye examinations or instruments^{3,12,13} and in two outbreaks,^{10,11} control measures included the implementation of asymptomatic staff screening in an effort to identify potential carriers. While there were no additional staff identified as asymptomatic carriers in one outbreak,¹¹ the identification of five additional asymptomatic HCP cases helped end transmission in the other outbreak.¹⁰ During another outbreak,¹⁹ HCP who continued to test positive despite symptoms ending were allowed to return to work while wearing masks and face shields. In all outbreak settings, work restrictions were implemented in conjunction with other infection control measures, making it impossible to determine the impact of work restriction for any duration on the transmission of adenoviruses that cause conjunctivitis among HCP or patients. The one before-after study^{2,22} compared work restrictions for 14 days to no work restrictions, and the quasi-experimental study did not provide comparison data after implementing a policy change from 14 days to signs and symptoms. In addition, this quasi-experimental study¹⁵⁻¹⁸ utilized PCR testing and prospective serotyping

which may not be possible in all healthcare settings. While this review identified quasi-experimental studies reporting on the effect of symptom-based or duration-based work restrictions to prevent and control conjunctivitis outbreaks, it did not identify any cluster randomized controlled trials comparing the implementation of different work restrictions to prevent outbreaks, which remains a gap in the evidence base. In addition, the evidence is mostly comprised of outbreak reports with heterogeneous case definitions, simultaneous implementation of various infection prevention and control measures, and diverse approaches to determining the outbreak source, limiting internal validity across the body of evidence.

Two of the more recent outbreak reports suggest asymptomatic¹⁰ or post-recovery HCP¹⁹ may contribute to adenovirus transmission during outbreaks. The identification and subsequent furlough of asymptomatic staff helped end transmission in one outbreak¹⁰ while the use of additional personal protective equipment among HCP returning to work while PCR-positive despite symptoms ending helped prevent additional transmission in another outbreak.¹⁹

Two outbreak reports^{19,20} identified the resource or personnel costs associated with implementing infection control measures to prevent adenovirus transmission. One outbreak²⁰ identified the loss of productivity due to infected staff absenteeism as the greatest expense. The other¹⁹ reported 180 workdays lost among 12 HCP furloughed for the duration of symptoms, an average of 30 laboratory staff hours spent performing culture and PCR tests, and over 230 hours of infection control committee member worktime spent on outbreak management and sampling. This outbreak¹⁹ also noted the additional financial burden due to the consumption of laboratory materials for sampling and PCR testing, and cleaning materials used for enhanced environmental disinfection.

The literature search also identified a nested cohort study⁸ reporting viral clearance among individuals with adenoviral conjunctivitis that did not meet inclusion criteria as the study did not report on transmission following the implementation of infection prevention and control measures that included the restriction of HCP from work. The study assessed conjunctival viral shedding in one eye at baseline and on days 1-2, 4-5, 7, 14, and 21 using molecular qPCR testing and reported a decline in detectable virus by day 7 [4/9 (44%)]. By day 14, the majority of participants had no detectable virus [6/8 (75%)] and by day 21 no participants were shedding [7/7 (100%)]. The study also recorded clinical signs measured by masked clinician and reported clinical signs continued after viral shedding had ceased. It is important to note that participants were ‘controls’ in another study²⁸ who received in-office saline lavage, and it is unknown whether this treatment may impact viral shedding in the eye. The literature search did not retrieve studies reporting on the duration of shedding among adults with EKC.

Lastly, bibliography mining identified three additional descriptive studies^{9,21,29} reporting on viral testing among individuals with adenoviral conjunctivitis. These studies did not meet inclusion criteria as they did not report on transmissions in healthcare settings following the implementation of infection prevention and control measures that included the restriction of HCP from work. Instead, these studies reported on one-time conjunctival swabs obtained from individuals identified in outbreaks at an ophthalmologist office,⁹ an eye hospital,²¹ and a medical dispensary for an industrial plant.²⁹ These studies suggest continued viral shedding within seven,²⁹ 14,²¹ or 15 days after symptom onset.⁹ All three of these outbreaks involved serotypes (3, 8, 37) that are often associated with EKC.

D.3. Evidence Tables

D.3.a. GRADE-ed Summary of Findings

Key Question: For previously healthy adults with adenoviral conjunctivitis working in healthcare settings, does work restrictions for duration of symptoms, compared with work restrictions for 14 days, prevent transmission of adenoviruses that cause conjunctivitis in healthcare settings?

Table 2. GRADE Table: Work Restrictions to Prevent Transmission of Adenoviruses that Cause Conjunctivitis in Healthcare Settings

<u>Intervention</u>	<u>Outcome</u>	<u>Summary</u>	<u>Population (no. of studies)</u>	<u>Confidence</u>
Work restriction for duration of symptoms	Transmission of adenoviruses that cause conjunctivitis	Evidence from five studies suggests work restrictions for the duration of symptoms may prevent transmission of adenoviruses that cause conjunctivitis. - Four studies suggest using the resolution of symptoms as return to work criteria can reduce or prevent transmission of adenoviruses that cause conjunctivitis when used in combination with other infection prevention and control measures. One quasi-experimental before-after study¹⁵⁻¹⁸ described the implementation of a policy change from work restrictions for 14 days to the duration of symptoms, and reported no outbreaks involving HCP during the seven years after implementation despite an increase in the proportion of employees testing positive for adenovirus and EKC. However, this study does not report baseline data. Two outbreak studies^{4,14} reported no new cases were identified following the implementation of multiple infection control measures including work restrictions for the duration of symptoms. One study²⁰ measuring the costs associated with an outbreak in a long-term care facility reported no new patient or HCP cases several weeks after implementing multiple infection control measures which included approval of HCP absence for the duration of their symptoms. - One outbreak report suggested that despite work restrictions for symptomatic HCP, transmission continued in one outbreak¹⁹ until the implementation of multiple infection control measures including environmental sampling and enhanced environmental cleaning. In one study,¹⁴ authors suggest that ophthalmologists and their equipment were involved in the spread of adenoviruses that cause conjunctivitis.	N =251 cases 1 OBS¹⁵⁻¹⁸ and 4 DES studies^{4,14,19,20}	Very low ^a
Work restriction for at least 14 or 15 days	Transmission of adenoviruses	Evidence from four studies suggests work restrictions for at least 14^{3,13} or 15 days^{10,12} may be insufficient to prevent transmission of adenoviruses that cause conjunctivitis during an outbreak.	N = 184 cases 4 DES studies^{3,10,12,13}	Very low ^b

^a Downgraded for risk of bias: Confounding due to multiple infection control measures implemented sequentially or concurrently where the individual impact of each measure cannot be determined. Measurement misclassification due to the quasi-experimental study not capturing patient cases as part of outbreak definition. Downgraded for imprecision: One descriptive study reported number of lost productivity-days across the infected HCP, suggesting duration of absenteeism aligned with duration of symptoms.

^b Downgraded for risk of bias: Confounding due to multiple infection control measures implemented sequentially or concurrently where the individual impact of each measure cannot be determined. Downgraded for imprecision: Studies implemented work restrictions for a minimum duration with extensions for different reasons (continued symptoms or continued adenovirus positivity).

<u>Intervention</u>	<u>Outcome</u>	<u>Summary</u>	<u>Population (no. of studies)</u>	<u>Confidence</u>
	that cause conjunctivitis	In all four outbreaks, transmission continued following the implementation of multiple infection control measures including work restrictions. Three studies extended work restrictions beyond 14³ or 15 days^{10,12} if HCP remained symptomatic, and one¹³ extended beyond 14 days if HCP continued to test positive for adenovirus. Outbreaks ended following the implementation of additional infection control measures, which included screening of asymptomatic staff,¹⁰ enhanced disinfection and sterilization¹³ or procurement¹² of equipment, and improved hand hygiene and triaging of patients.³ ROP examination^{12,13} or pneumotonometry³ were the suspected causes of three outbreaks.		
Work restriction for 10 or 14 days	Transmission of adenoviruses that cause EKC	Evidence from four studies is inconclusive on the effectiveness of work restrictions for 10⁵ or 14 days^{2,11,22,23} to prevent transmission of adenoviruses that cause conjunctivitis during an outbreak or during routine practice. - Two studies, one observational study^{2,22} and one outbreak study,⁵ reported a decrease in or end to transmission of adenoviruses that cause EKC following the implementation of an infection control program which included work restriction for 14 days^{2,22} or 10 days.⁵ Both studies implemented multiple infection prevention and control measures with the work restrictions. In the outbreak report, contact with a particular HCP was associated with transmission of adenoviruses that cause EKC; however, that HCP was not infected, suggesting instruments may have been a vector. - In two other outbreaks, transmission continued following the implementation of infection control measures which included work restriction for 14 days, suggesting HCP may not have been the cause of transmission.^{11,23} Transmission in these two outbreaks only ended following the implementation of additional infection control measures. One outbreak¹¹ ended after implementing enhanced environmental cleaning, improved disinfection and sterilization methods, and screening of all NICU patients. The other²³ ended after implementing a triage room to evaluate patients upon entry, utilizing a 'red room' for examining	N = 677 cases 1 OBS^{2,22} and 3 DES studies^{5,11,23}	Very low ^c

^c Downgraded for risk of bias: Confounding due to multiple infection control measures implemented sequentially or concurrently where the individual impact of each measure cannot be determined. Downgraded for indirectness: The comparison group in the only before-after study was not comparator of interest as no infection control policy was in place prior to implementation of intervention.

<u>Intervention</u>	<u>Outcome</u>	<u>Summary</u>	<u>Population (no. of studies)</u>	<u>Confidence</u>
		suspected cases, and treating paper towels used by EKC patients as infectious.		

OBS: Observational; DES: Descriptive

D.3.b. Extracted Evidence from Included Studies

Table 3. Brief Summary of Extracted Evidence for Healthcare Personnel and Work Restrictions for Prevention of Adenoviral Conjunctivitis

Author, Year	Population & Setting	Work Restriction	Outbreak ended due to Work Restrictions
Author: Kuo Year: 2021 ¹⁸ Study design: Quasi-experimental before-after Related studies: Kuo 2014 ¹⁶ Kuo 2016 ¹⁷ Kuo 2018 ¹⁵	Pathogen: Adenovirus including serotypes causing EKC Population: N = 1,520 HCP PCR-tested for adenoviral conjunctivitis; 130 PCR-positive adenovirus cases, including 41 EKC cases Setting: Ophthalmological institute of academic hospital Country: USA Study dates: November 1, 2011 – October 31, 2018	Work restriction definition: Symptomatic employees sent home pending PCR results, which were reported via telephone within a few hours. PCR-negative employees return to work when free of signs and symptoms (usually 1-3 days) or referred to ophthalmologist if still symptomatic. PCR-positive employees with EKC genotype were furloughed for 14 days depending on signs and symptoms. PCR-positive employees with non-EKC genotype were furloughed for 7 days depending on signs and symptoms. Minimum duration of work restriction: PCR-negative: 1 How work restriction ended for furloughed HCP: Once signs and symptoms resolve HCP screening: Symptomatic HCP swabs for PCR testing and adenovirus typing	Outbreak duration: NA Did work restriction end outbreak: Unclear Policy changed from 14-day work restriction to duration of symptoms for adenoviral conjunctivitis. Despite an increase in the number and proportion of employees testing positive for EKC and an increase in the proportion testing positive for adenovirus, there were no reported outbreaks consisting of two or more cases among employees from the same department seen within two weeks in occupational health department caused by same adenovirus type. Intervention included PCR testing and prospective serotyping of all employees suspected of adenoviral conjunctivitis. Work restrictions were implemented based on test results. Patient outcomes were not reported.
Author: Chaberny ¹⁴ Year: 2003 Study design: Descriptive	Pathogen: Adenovirus type 8 EKC Population: N = 30 cases (n = 6 HCP, n = 13 patients, n = 11 relatives) Setting: NICU in university pediatric hospital Country: Germany Study dates: October – November 1998	Work restriction definition: HCP who suffered from EKC were put on sick-list until free of signs. Adenovirus PCR performed on eye swabs taken after resolution of signs. Minimum duration of work restriction: NR How work restriction ended for furloughed HCP: PCR performed on eye swabs taken after resolution of symptoms; HCP returned to work after recovery HCP screening: NR	Outbreak duration: 27 days Did work restriction end outbreak: Unclear Multiple infection control measures including work restrictions were implemented simultaneously. No new patient cases were diagnosed more than 10 days after the implementation of infection control measures.
Author: Massey ⁴ Year: 2016 Study design: Descriptive	Pathogen: Adenoviral EKC Population: N = 38 cases (n = 2 HCP, n = 36 patients) Setting: Ophthalmology practice	Work restriction definition: Mandatory leave recommended for symptomatic staff members. Minimum duration of work restriction: NR	Outbreak duration: 109 days Did work restriction end outbreak: Unclear Multiple infection control measures including work restrictions were implemented simultaneously. The last

Author, Year	Population & Setting	Work Restriction	Outbreak ended due to Work Restrictions
	Country: USA Study dates: August 14 – December 1, 2015	How work restriction ended for furloughed HCP: Once HCP no longer symptomatic HCP screening: NR	practice-associated case developed symptoms on September 27, 2015, 12 days after implementing infection control measures.
Author: Memisoglu ¹⁹ Year: 2025 Study design: Descriptive	Pathogen: Adenovirus type 8 Population: N = 12 HCP Setting: Ophthalmology clinic and NICU of tertiary care hospital Country: Turkey Study dates: March 4 – April 15, 2024	Work restriction definition: HCP with severe ocular symptoms such as conjunctival hyperemia, periorbital edema, severe foreign body sensation, pain, itching, and photophobia accompanied by tearing or eye discharge were sent home. Minimum duration of work restriction: NR How work restriction ended for furloughed HCP: Staff returning from sick leave were no longer exhibiting symptoms such as frequent sneezing and visible tearing HCP screening: All employees, including those on work restriction, were called for sampling; all 11/12 employees who were available to provide swab samples were PCR-positive for AdV	Outbreak duration: 42 days Did work restriction end outbreak: No During March 4–29 work restrictions were implemented for duration of symptoms and those who were AdV DNA positive despite abatement of symptoms were approved to return to work with wearing masks, face shields, and strict hand and environmental hygiene practices. The hospital's infection control committee (ICC) was notified of symptomatic staff in the eye clinic on March 29. The same day, the ICC found transmission to 4 nurses in the NICU and implemented environmental sampling, enhanced environmental disinfection, contact precautions, hand hygiene, and cohorting of symptomatic patients through a specific secretary to a designated patient room until April 6 when the clinic was closed. No new staff cases were identified following implementation of ICC interventions, and no new positive environmental samples were identified following reopening of the clinic on April 15 after a 9-day holiday.
Author: Piednoir ²⁰ Year: 2002 Study design: Descriptive	Pathogen: Adenoviral EKC Population: N = 41 cases (n = 12 HCP, n = 29 patients) Setting: Long-term care facility affiliated with university hospital Country: France Study dates: October 2 – December 10, 2000	Work restriction definition: Approval of HCP absence for the duration of symptoms Minimum duration of work restriction: NR but 155 productivity-days were lost among the 12 infected HCP How work restriction ended for furloughed HCP: Presumably until symptoms ended; HCP submitted sick leave applications and were absent for varying durations HCP screening: NR	Outbreak duration: 56 days Did work restriction end outbreak: Unclear Multiple infection control measures including work restrictions were implemented simultaneously on October 16. Preventive measures were stopped by November 20, and there were no new patient or staff cases identified after November 26.
Author: Angueyra ¹⁰ Year: 2021 Study design: Descriptive	Pathogen: Adenovirus genotype 8 Population: N = 26 cases (n = 12 HCP, n = 14 patients) Setting: NICU of a tertiary-care healthcare institution Country: Argentina Study dates: January 30 – April 28, 2018	Work restriction definition: All HCP with positive adenovirus PCR results, including asymptomatic HCP, were furloughed for at least 15 days. Minimum duration of work restriction: 15 days How work restriction ended for furloughed HCP: After 15 days	Outbreak duration: 88 days Did work restriction end outbreak: No Transmission continued after implementation of work restrictions. Transmission ended only after implementation of additional infection control measures including screening for asymptomatic carriage by HCP.

Author, Year	Population & Setting	Work Restriction	Outbreak ended due to Work Restrictions
		HCP screening: All asymptomatic HCP were screened to identify carriers (5 asymptomatic HCP tested positive)	
Author: Calkavur ¹¹ Year: 2012 Study design: Descriptive	Pathogen: Adenoviral EKC Population: N = 34 cases (n = 8 HCP, n = 26 patients) Setting: Level II and III NICUs at a teaching and research hospital Country: Turkey Study dates: July – August 2009	Work restriction definition: HCP caring for index patient developed keratoconjunctivitis and was suspended for 14 days. Minimum duration of work restriction: 14 days How work restriction ended for furloughed HCP: After 14 days HCP screening: Nasopharyngeal swab samples collected from asymptomatic nursery staff to identify viral carriers (all were negative)	Outbreak duration: 32 days Did work restriction end outbreak: No Transmission continued after implementation of work restrictions. Transmission ended only after implementation of additional infection control measures including enhanced environmental cleaning, improved disinfection and sterilization methods, and screening of all NICU patients. Nursery HCP were also screened, however no asymptomatic carriers were identified.
Author: Ersoy ¹² Year: 2012 Study design: Descriptive	Pathogen: Adenovirus D8 or D Population: N = 24 cases (n = 5 HCP, n = 15 patients, n = 4 relatives) Setting: NICU at university hospital Country: Turkey Study dates: January 15 – February 25, 2010	Work restriction definition: HCP with conjunctivitis were excluded from work for at least 15 days. Minimum duration of work restriction: 15 days How work restriction ended for furloughed HCP: NR HCP screening: NR	Outbreak duration: 41 days Did work restriction end outbreak: No Transmission continued after implementation of work restrictions. Nested case-control results suggest cases were more likely to have had ROP examination than preterm neonates who did not develop adenoviral conjunctivitis [OR 17.5 (95% CI: 1.9 – 163.0), p = 0.012].
Author: Gottsch ² Year: 1999 Study design: Quasi-experimental before-after Related studies: Gottsch 1996 ²²	Pathogen: Adenoviral EKC Population: N = 188 cases; N = 679,989 visits; N = 14 outbreaks Setting: Ophthalmological institute of academic hospital Country: USA Study dates: September 1984 – December 1997	Work restriction definition: Employees with suspected viral conjunctivitis were relieved from work for 3 days, after which a repeat evaluation was performed. If signs of disease continued, employee was furloughed until no drainage or for 14 days. Employees with a positive culture or definitive clinical signs of EKC were furloughed for 14 days if an epidemic is under way or until symptoms and drainage resolve in a nonepidemic period. A work release form from a physician was required to return to duty. Minimum duration of work restriction: 3 days How work restriction ended for furloughed HCP: After 3 days for HCP with no signs of disease during repeat evaluation; after 14 days for HCP with signs of disease during repeat evaluation HCP screening: NR	Outbreak duration: NA Did work restriction end outbreak: Unclear New infection control program (IPC) was established and consisted of multiple infection control measures, including work restrictions for conjunctivitis and EKC, that were implemented simultaneously. Outbreaks and outbreak-associated cases decreased following implementation of infection control program. Outbreak rate per 100,000 visits (# outbreaks / # years) Post-ICP (1992-1997): 0.54 (2 outbreaks/ 6 years) Pre-ICP (1984-1991): 3.89 (12 outbreaks/8 years) p < 0.005 Infection rate per 100,000 visits (# cases / # years) Post-ICP: 5.66 (21 cases/ 6 years) Pre-ICP: 54.09 (167 cases/ 8 years) p < 0.0005
Author: Jernigan ³ Year: 1993	Pathogen: Adenovirus type 8 EKC Population: N = 99 cases (n = 4 HCP, n = 95 patients)	Work restriction definition: Ophthalmology personnel with active EKC were furloughed for 14 days (or longer for a prolonged case of conjunctivitis).	Outbreak duration: 68 days Did work restriction end outbreak: No

Author, Year	Population & Setting	Work Restriction	Outbreak ended due to Work Restrictions
Study design: Descriptive	Setting: University ophthalmological institute of academic hospital Country: USA Study dates: July 4 – September 10, 1986	Minimum duration of work restriction: 14 days How work restriction ended for furloughed HCP: After 14 days and no longer considered a case HCP screening: NR	Transmission continued after implementation of work restrictions. Transmission ended only after implementation of additional infection control measures including increased hand hygiene and PPE use, improved isolation of EKC patients, patient education, and a meeting among hospital epidemiology and ophthalmology clinic personnel. Nested case-control suggest cases were more likely to have had pneumotonometry [OR 8.12 (95% CI: 3.6 – 18.6), $p < 0.0001$], multiple visits to the clinic [OR 16.3 (95% CI: 7.6 – 35.8), $p < 0.0001$], and at least one visit with an infected ophthalmologist [OR 5.5 (95% CI: 3.3 – 10.6), $p = 0.00004$].
Author: Montessori ⁵ Year: 1998 Study design: Descriptive	Pathogen: Adenoviral EKC Population: N = 39 cases Setting: Tertiary referral eye care clinic Country: Canada Study dates: September – November 1995	Work restriction definition: A 10-day leave of absence was advocated for any HCP with EKC. Minimum duration of work restriction: 10 days How work restriction ended for furloughed HCP: After 10 days HCP screening: NR	Outbreak duration: 47 days Did work restriction end outbreak: Unclear Multiple infection control measures including work restrictions were implemented simultaneously. No additional cases were identified in the month following implementation of interventions. Contact with a particular HCP was associated with transmission of adenoviruses that cause EKC, however that HCP was not infected, suggesting the instruments might have been a vector of infection.
Author: Warren ²³ Year: 1989 Study design: Descriptive	Pathogen: Adenoviral EKC Population: N = 416 cases (n = 401 patients; n = 15 HCP) Setting: Ophthalmology service consisting of 12 different clinics, 16 private offices, inpatient services, surgical suites, eye trauma unit, and eye photography unit Country: USA Study dates: July – October 1985	Work restriction definition: Infected staff were removed from patient contact until 14 days after onset of clinical infection in second eye. Minimum duration of work restriction: 14 days How work restriction ended for furloughed HCP: After 14 days HCP screening: NR	Outbreak duration: 98 days Did work restriction end outbreak: No Initial routine infection control measures, which included work restriction of ill employees, did not end nosocomial transmission. Transmission did abruptly end following implementation of additional infection control measures, including establishing a triage room to examine all patients for possible infection upon entry, establishing a 'red room' examination room for suspected cases, staff education, informing ophthalmologists of new cases daily, and handling paper towels from EKC patients as infectious and discarding in color-coded infectious-waste containers.
Author: Sartor ¹³ Year: 2023 Study design: Descriptive	Pathogen: Adenoviral D8 or D Population: N = 35 cases (n = 2 HCP, n = 15 patients; n = 18 parents) Setting: Level 3 neonatal center consisting of NICU and neonatal medical unit	Work restriction definition: HCP were restricted from work for at least 14 days after symptom onset. A negative PCR result was required upon returning to work. Minimum duration of work restriction: 14 days	Outbreak duration: 58 days Did work restriction end outbreak: No Transmission continued after implementation of work restrictions. Two HCP were identified as cases later in outbreak. Transmission continued among patients and their parents until implementation of enhanced

Author, Year	Population & Setting	Work Restriction	Outbreak ended due to Work Restrictions
	Country: France Study dates: April 29 – June 26, 2019	How work restriction ended for furloughed HCP: Negative PCR result HCP screening: Neonatal HCP were screened for clinical signs of conjunctivitis and only sampled if symptomatic	disinfection and sterilization of the retinopathy of prematurity tool. Nested case-control results suggest cases were more likely to have had ROP examination than neonates who did not develop adenovirus [RR 41.6 (95% CI: 5.7 – 305.9), $p < 0.001$].

Table 4. Brief Summary of Additional Studies Identified through Literature Search and Bibliography Mining

Author, Year	Population & Setting	Data collection & Diagnostic tests	Duration of symptoms	Duration of shedding
Author: Harthan ⁸ Year: 2024 Study design: Nested cohort	Population: N = 12 patients with adenoviral conjunctivitis Setting: 9 clinical sites including academic centers, tertiary medical centers, and an Army medical center Country: USA Study dates: March 2015 – July 2018	Sampling method: Conjunctival swab collected at baseline and on days 1-2, 4-5, 7, 14, and 21 Diagnostic tests: qPCR Symptom ascertainment: Ocular clinical signs graded by masked clinicians using a standardized grading scale from 0 (absent) to 4 (severe) for serous discharge, bulbar redness, mucoid discharge, eyelid edema, eyelash matting, bulbar edema, and conjunctival follicles; clinical signs considered 'present' when grade greater than 0	Redness: Baseline: 12/12 (100%) Day 1-2: 9/9 (100%) Day 4-5: 8/8 (100%) Day 7: 8/8 (100%) Day 14: 6/8 (75%) Day 21: 4/7 (57%) Follicular conjunctivitis: Baseline: 9/12 (75%) Day 1-2: 9/9 (100%) Day 4-5: 7/8 (88%) Day 7: 8/8 (100%) Day 14: 6/8 (75%) Day 21: 4/7 (57%) Serous discharge: Baseline: 12/12 (100%) Day 1-2: 9/9 (100%) Day 4-5: 8/8 (100%) Day 7: 5/8 (63%) Day 14: 2/8 (25%) Day 21: 0/7 (0%) Lid edema: Baseline: 10/12 (83%) Day 1-2: 6/9 (67%) Day 4-5: 7/8 (88%) Day 7: 5/8 (63%) Day 14: 4/8 (50%) Day 21: 1/7 (14%) Mucoid discharge: Baseline: 6/12 (50%) Day 1-2: 4/9 (44%) Day 4-5: 5/8 (63%)	Shedding at baseline: 12/12 (100%) Shedding at day 1-2: 9/9 (100%) Shedding at day 4-5: 8/8 (100%) Shedding at day 7: 5/9 (56%) Shedding at day 14: 2/8 (25%) Shedding at day 21: 0/7 (0%)

Author, Year	Population & Setting	Data collection & Diagnostic tests	Duration of symptoms	Duration of shedding
			Day 7: 1/8 (13%) Day 14: 1/8 (13%) Day 21: 0/7 (0%) Matting: Baseline: 7/12 (58%) Day 1-2: 6/9 (67%) Day 4-5: 5/8 (63%) Day 7: 5/8 (63%) Day 14: 1/8 (13%) Day 21: 0/7 (0%) Bulbar edema: Baseline: 10/12 (83%) Day 1-2: 9/9 (100%) Day 4-5: 8/8 (100%) Day 7: 7/8 (88%) Day 14: 4/8 (50%) Day 21: 3/7 (43%) Palpable lymph nodes: Baseline: 7/12 (58%) Day 1-2: 6/9 (67%) Day 4-5: 4/8 (50%) Day 7: 2/8 (25%) Day 14: 2/8 (25%) Day 21: 1/7 (14%)	
Author: Keenlyside ⁹ Year: 1983 Study design: Descriptive	Population: N = 83 patients Setting: Ophthalmologist office Country: USA Study dates: September 1977 – April 1978	Sampling method: One-time conjunctival swabs obtained at intervals from 0-15 days after onset of illness Diagnostic tests: Smears of conjunctival cells taken with cotton swab examined for viral antigens by fluorescent antibody techniques Symptom ascertainment: NR	Duration of illness, mean: 17 days	Shedding within 15 days: 17/22 (77%)
Author: Sprague ²⁹ Year: 1973 Study design: Descriptive	Population: N = 143 patients Setting: Medical dispensary for industrial plant Country: USA Study dates: May 12 – September 14, 1971	Sampling method: One-time eye swabs of 22 patients with a history of clinical illness of less than seven days Diagnostic tests: Culture Symptom ascertainment: NR	Duration of illness (time of return to work), mean (range): 20 days (3 – 60 days) Duration of marked discomfort, range: 4 – 8 days Duration of visual symptoms: 16 patients (17%) reported visual symptoms for more than one month, usually mild visual blurring or a halo sensation when they were looking at light	Shedding within 7 days: 10/22 (45%)

Author, Year	Population & Setting	Data collection & Diagnostic tests	Duration of symptoms	Duration of shedding
Author: Hart ²¹ Year: 1972 Study design: Descriptive	Population: N = 81 patients Setting: Eye hospital Country: United Kingdom Study dates: July – October 1971	Sampling method: One-time conjunctival swabs collected from 20 patients seen within 14 days of initial ocular reaction Diagnostic tests: Culture Symptom ascertainment: NR	Duration of symptoms: NR	Shedding within 14 days: 18/20 (90%)

Table 5. Internal Validity Assessment of Studies Examining Work Restrictions for Prevention of Adenoviral Conjunctivitis

Domain	Signaling question	AUTHOR YEAR	Work Restrictions for Duration of Symptoms					Work Restrictions for at least 14 or 15 Days				Work Restrictions for 10 or 14 days			
			Kuo 2021	Chaberny 2003	Massey 2016	Memisoglu 2025	Piednoir 2002	Jernigan 1993	Ersoy 2012	Angueyra 2021	Sartor 2023	Calkavur 2012	Gottsch 1999	Montessori 1998	Warren 1989
Study Elements	Design appropriate to research question														
	Well described population														
	Well described setting														
	Well described intervention/ exposure														
	Well described control/ comparator														
	Well described outcome														
	Clear timeline of exposures/ interventions and outcomes														
Selection Bias: Sampling	Power calculation conducted appropriately														
	Randomization appropriately performed														
	Allocation adequately concealed														
	Population sampling appropriate to study design														
Selection Bias: Attrition	Population appropriately representative														
	If high attrition, attrition appropriately analyzed														
Information Bias: Measurement and Misclassification	If attrition is different across groups, attrition appropriately analyzed														
	Measure of intervention/ exposure is valid														
	Measure of outcome is valid														
	Fidelity to intervention is measured														
	Fidelity to intervention is valid														
Information Bias: Performance & Detection	Prospective study														
	Adequately powered to detect result														
	Outcome assessor blinded														
	Study participant blinded														
Information Bias: Analytic	Investigator/ data analyst blinded														
	Data collection methods described in sufficient detail														
	Data collection methods appropriate														
Confounding	Sufficient follow up to detect outcome														
	Appropriate statistical analyses for collected data														
	Appropriate statistical analyses are conducted correctly														
Reporting Bias	Confidence interval is narrow														
	Potential confounders identified														
	Adjustment for confounders in study design phase														
Other Bias	Adjustment for confounders in data analysis phase														
	No confounding concerns remain														
	All pre-specified outcomes are adequately reported														
COI	No other sources of bias														
	Funding sources disclosed and no obvious conflict of interest														

Legend	
	Study satisfies this element
	Study does not satisfy this element
	Unknown or not applicable

E. Search Strategies and Results

Table 6. Primary Search of MEDLINE (OVID), Embase (OVID), CINAHL (Ebsco), Scopus, Cochrane Library, Public Health Database (ProQuest)

Database	Strategy	Records 01/14/2026
Medline (OVID) 1946-	exp Conjunctivitis/ OR (keratoconjunctivit* OR conjunctiv* OR eye infection* OR subepithelial opacit* OR red-eye OR pink-eye) AND Exp health personnel/ OR (Healthcare setting* OR health care setting* OR (health* ADJ2 facilit*) OR hospital* OR clinic* OR medical center* OR medical facilit* OR care facilit* OR (health* ADJ2 work*) OR (health* ADJ2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* ADJ2 aide*) OR caregiver* OR urgent care OR acute care OR office visit* OR (health* ADJ2 provider*) OR (health* ADJ2 professional*) OR ophthalmologist* OR optometrist* OR family practice OR dental OR dentist* OR nosocomial OR healthcare acquired infection* OR health care acquired infection* OR hospital acquired infection* OR cross infection*) AND ((work* ADJ5 restrict*) OR (work* ADJ5 abscon*) OR distancing OR (work* ADJ5 polic*) OR (take ADJ5 leave) OR (sick ADJ5 leave) OR (off ADJ5 work*) OR (work* ADJ5 intervention*) OR furlough* OR (duty ADJ5 restrict*) OR (duties ADJ5 restrict*) OR (job ADJ5 restrict*) OR (employee* ADJ5 restrict*) OR (limit* ADJ5 contact*) OR reassign* OR infection control OR (work* ADJ5 schedul*) OR (employee* ADJ5 schedul*)) NOT Exp animals/ NOT exp humans/	223
Embase (OVID) 1947-	exp Conjunctivitis/ OR (keratoconjunctivit* OR conjunctiv* OR eye infection* OR subepithelial opacit* OR red-eye OR pink-eye) AND Exp health care personnel/ OR (Healthcare setting* OR health care setting* OR (health* ADJ2 facilit*) OR hospital* OR clinic* OR medical center* OR medical facilit* OR care facilit* OR (health* ADJ2 work*) OR (health* ADJ2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* ADJ2 aide*) OR caregiver* OR urgent care OR acute care OR office visit* OR (health* ADJ2 provider*) OR (health* ADJ2 professional*) OR ophthalmologist* OR optometrist* OR family practice OR dental OR dentist* OR nosocomial OR healthcare acquired infection* OR health care acquired infection* OR hospital acquired infection* OR cross infection*) AND ((work* ADJ5 restrict*) OR (work* ADJ5 abscon*) OR distancing OR (work* ADJ5 polic*) OR (take ADJ5 leave) OR (sick ADJ5 leave) OR (off ADJ5 work*) OR (work* ADJ5 intervention*) OR furlough* OR (duty ADJ5 restrict*) OR (duties ADJ5 restrict*) OR (job ADJ5 restrict*) OR (employee* ADJ5 restrict*) OR (limit* ADJ5 contact*) OR reassign* OR infection control OR (work* ADJ5 schedul*) OR (employee* ADJ5 schedul*)) NOT Exp animal/ NOT exp human/ Remove Medline records	775 -142 duplicates = 633 unique items
CINAHL (Ebsco)	(MH "Conjunctivitis+") OR (keratoconjunctivit* OR conjunctiv* OR "eye infection*" OR "subepithelial opacit*" OR red-eye OR pink-eye) AND (MH "Health Personnel+") OR ("Healthcare setting*" OR "health care setting*" OR (health* N2 facilit*) OR hospital* OR clinic* OR "medical center*" OR "medical facilit*" OR "care facilit*" OR (health* N2 work*) OR (health* N2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* N2 aide*) OR caregiver* OR "urgent care" OR "acute care" OR "office visit*" OR (health* N2 provider*) OR (health* N2 professional*) OR ophthalmologist* OR	40 -15 duplicates =25 unique items

Database	Strategy	Records 01/14/2026
	optometrist* OR "family practice" OR dental OR dentist* OR nosocomial OR "healthcare acquired infection*" OR "health care acquired infection*" OR "hospital acquired infection*" OR "cross infection*") AND ((work* N5 restrict*) OR (work* N5 abscen*) OR distancing OR (work* N5 polic*) OR (take N5 leave) OR (sick N5 leave) OR (off N5 work*) OR (work* N5 intervention*) OR furlough* OR (duty N5 restrict*) OR (duties N5 restrict*) OR (job N5 restrict*) OR (employee* N5 restrict*) OR (limit* N5 contact*) OR reassign* OR "infection control" OR (work* N5 schedul*) OR (employee* N5 schedul*))	
Scopus	TITLE-ABS-KEY(keratoconjunctivit* OR conjunctiv* OR "eye infection*" OR "subepithelial opacit*" OR red-eye OR pink-eye) AND TITLE-ABS-KEY("Healthcare setting*" OR "health care setting*" OR (health* W/2 facilit*) OR hospital* OR clinic* OR "medical center*" OR "medical facilit*" OR "care facilit*" OR (health* W/2 work*) OR (health* W/2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* W/2 aide*) OR caregiver* OR "urgent care" OR "acute care" OR "office visit*" OR (health* W/2 provider*) OR (health* W/2 professional*) OR ophthalmologist* OR optometrist* OR "family practice" OR dental OR dentist* OR nosocomial OR "healthcare acquired infection*" OR "health care acquired infection*" OR "hospital acquired infection*" OR "cross infection*") AND TITLE-ABS-KEY((work* W/5 restrict*) OR (work* W/5 abscen*) OR distancing OR (work* W/5 polic*) OR (take W/5 leave) OR (sick W/5 leave) OR (off W/5 work*) OR (work* W/5 intervention*) OR furlough* OR (duty W/5 restrict*) OR (duties W/5 restrict*) OR (job W/5 restrict*) OR (employee* W/5 restrict*) OR (limit* W/5 contact*) OR reassign* OR "infection control" OR (work* W/5 schedul*) OR (employee* W/5 schedul*)) AND NOT INDEX(medline)	187 -151 duplicates =36 unique items
Cochrane Library	[mh ^"Conjunctivitis"] OR (keratoconjunctivit* OR conjunctiv* OR "eye infection*" OR (subepithelial NEAR opacit*) OR red-eye OR pink-eye):ti,ab AND [mh ^"Health Personnel"] OR ("Healthcare setting*" OR "health care setting*" OR (health* NEAR/2 facilit*) OR hospital* OR clinic* OR "medical center*" OR "medical facilit*" OR "care facilit*" OR (health* NEAR/2 work*) OR (health* NEAR/2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* NEAR/2 aide*) OR caregiver* OR "urgent care" OR "acute care" OR "office visit*" OR (health* NEAR/2 provider*) OR (health* NEAR/2 professional*) OR ophthalmologist* OR optometrist* OR "family practice" OR dental OR dentist* OR nosocomial OR "healthcare acquired infection*" OR "health care acquired infection*" OR "hospital acquired infection*" OR "cross infection*"):ti,ab AND ((work* NEAR/5 restrict*) OR (work* NEAR/5 abscen*) OR distancing OR (work* NEAR/5 polic*) OR (take NEAR/5 leave) OR (sick NEAR/5 leave) OR (off NEAR/5 work*) OR (work* NEAR/5 intervention*) OR furlough* OR (duty NEAR/5 restrict*) OR (duties NEAR/5 restrict*) OR (job NEAR/5 restrict*) OR (employee* NEAR/5 restrict*) OR (limit* NEAR/5 contact*) OR reassign* OR "infection control" OR (work* NEAR/5 schedul*) OR (employee* NEAR/5 schedul*)):ti,ab	15 -4 duplicates =11 unique items
Public Health Database (ProQuest)	TI,AB(keratoconjunctivit* OR conjunctiv* OR "eye infection*" OR "subepithelial opacit*" OR red-eye OR pink-eye) AND TI,AB("Healthcare setting*" OR "health care setting*" OR (health* NEAR/2 facilit*) OR hospital* OR clinic* OR "medical center*" OR "medical facilit*" OR "care facilit*" OR (health* NEAR/2 work*) OR (health* NEAR/2 personnel) OR doctor* OR physician* OR nurse* OR nursing OR (health* NEAR/2 aide*) OR caregiver* OR "urgent care" OR "acute care" OR "office visit*" OR (health* NEAR/2 provider*) OR (health* NEAR/2 professional*) OR ophthalmologist* OR optometrist* OR "family practice" OR dental OR dentist* OR nosocomial OR "healthcare acquired infection*" OR "health care acquired infection*" OR "hospital acquired infection*" OR "cross infection*") AND ((work* NEAR/5 restrict*) OR (work* NEAR/5 abscen*) OR distancing OR (work* NEAR/5 polic*) OR (take NEAR/5 leave) OR (sick NEAR/5 leave) OR (off NEAR/5 work*) OR (work* NEAR/5 intervention*) OR furlough* OR (duty NEAR/5 restrict*) OR (duties NEAR/5 restrict*) OR (job NEAR/5 restrict*) OR (employee* NEAR/5 restrict*) OR (limit* NEAR/5 contact*) OR reassign* OR "infection control" OR (work* NEAR/5 schedul*) OR (employee* NEAR/5 schedul*))	110 -27 duplicates =83 unique items

F. Public Comments

Docket CDC-2025-0651 was posted to [Regulations.gov](https://www.regulations.gov/docket/CDC-2025-0651) (<https://www.regulations.gov/docket/CDC-2025-0651>) from December 11, 2025 through February 9, 2026 for a 60-day public comment period. Two comments are from the same submitter and are unrelated to the Draft Infection Control in Healthcare Personnel: Epidemiology and Control of Selected Infections Transmitted Among Healthcare Personnel and Patients: Conjunctivitis Section and Supplement. Related comments received are addressed in the table below.

Table 7. Responses to Relevant Public Comments

Document ID	Comment	Response
CDC-2025-0651-0005	I am submitting the attached paper in response to your request for comments on conjunctivitis management guidelines for healthcare personnel. The paper presents a framework using Agentic AI to help implement CDC guidelines consistently across healthcare settings. It shows how AI can assist with exposure management, work restrictions, outbreak detection, and training—addressing key challenges in guideline implementation. Key Points: AI can bridge the gap between policy and practice Provides 24/7 support for exposure management Ensures consistent application of guidelines Enables early outbreak detection Reduces burden on occupational health staff Recommendation: Please consider including AI-augmented systems as an implementation strategy in the final guideline.	Thank you for your comment. Detailing systems for guideline implementation strategy is beyond the scope of these documents, so no changes were made.
Document ID	Comment	Response
CDC-2025-0651-0008	While the draft appropriately highlights the risks associated with adenoviral epidemic keratoconjunctivitis, particularly in outbreak settings, the proposed	Thank you for your comment. The systematic review was not aimed at evaluating viral shedding, and there were only limited studies identified that

	recommendation would benefit from closer alignment with the evidence presented. In particular, work restrictions could be more clearly tied to periods of likely infectivity rather than symptom duration alone, as EKC symptoms may persist beyond viral shedding. In addition, the discussion of asymptomatic transmission and outbreak control suggests that preventing transmission relies on a combination of measures—including hand hygiene, environmental cleaning, and occupational health oversight—rather than universal exclusion of affected personnel. Incorporating etiologic distinctions, role-based risk considerations, and clearer return-to-work criteria would help balance infection prevention with workforce sustainability.	reported it. In these studies, shedding was measured by PCR, which does not clearly correlate with the presence of infectious virus. Discussions among the Workgroup and HICPAC highlighted that testing for adenovirus shedding is not widely available in most U.S. healthcare settings. Using symptoms to determine the duration of work restrictions compared to a single, universally applied exclusion period was also discussed. Symptom-based work restrictions provide more flexibility and allow some individuals to return to work sooner without risking ongoing transmission. The evidence review suggested that individuals with non-EKC adenovirus conjunctivitis were able to return to work sooner and without subsequent transmissions to other HCP when symptom-based criteria were applied. The section includes statements about the importance of a multifaceted approach (e.g., hand hygiene, cleaning of equipment), including work restrictions, in halting transmissions in healthcare settings. Inclusion of more detailed discussion or recommendations about comprehensive measures to control an outbreak of adenoviral conjunctivitis are beyond the scope of this guideline, which is intended to be focused on the management of ill and exposed healthcare workers.
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G. References

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