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주간 건강과 질병

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Content

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Aims and Scope

Public Health Weekly Report (Abbreviation: *Public Health Wkly Rep*, PHWR)는 질병관리청의 공식 학술지이다.

PHWR은 국가 공중보건 관련 조사 · 감시 · 연구 결과에 대한 근거 기반의 실용적이며 권위있는 정보를 보건의료인, 공중보건 종사자, 역학자, 국민 등에게 신속하고 정확하게 제공하는 목적으로 발행된다.

PHWR은 신속한 전문가 심사를 거쳐 감염병과 비감염성 질병, 손상과 중독, 건강증진 등과 관련된 조사/감시 보고, 집단발병 보고, 현장 보고, 연구 논문, 리뷰와 전망, 권고 보고와 정책 보고 등의 원고를 게재한다. PHWR은 주로 국내의 공중보건 관련 정보를 제공하지만 전 세계 연구자들의 투고를 환영한다.

About the Journal

PHWR (eISSN: 3092-491X)은 질병관리청에서 발간하는 학술지이다.

PHWR은 연간 50호의 주간 발간 학술지로 매주 목요일에 발행되며, 신속한 전문가 심사 과정을 통해 정보를 적시에 공유한다. 또한, PHWR은 오픈 액세스(Open Access) 학술지로, 저작물 이용 약관(https://creativecommons.org/licenses/by/4.0/)에 따라 원본이 적절히 인용되는 조건하에 제한없이 사용이 가능하다.

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PHWR Public Health Weekly Report

2025년 수도권역 온열질환 지역통계 현황 및 특성: 서울·인천·경기·강원 응급실감시체계 신고자료 분석

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질병관리청 수도권질병대응센터 만성질환사업과

초 록

목적: 2025년 질병관리청「온열질환 응급실감시체계」신고자료를 활용하여 수도권질병대응센터 관할지역인 서울·인천·경기·강원 4개 시·도의 온열질환 지역통계 현황과 발생 특성을 비교하고, 권역 내 95개 시·군·구별 신고건수 분포를 확인하고자 하였다.

방법: 2025년 5월 15일부터 9월 25일까지 운영된「온열질환 응급실감시체계」신고자료를 활용하였다. 감시체계는 전국 응급실 운영 의료기관의 자발적 참여로 운영되었으며, 2025년에 참여한 의료기관은 전국 516개, 관할지역 212개였다. 응급실에 내원한 온열질환자 및 추정사망자를 증상발생장소 기준으로 분류하고, 시·도별 발생 특성과 시·군·구별 신고건수 분포를 기술하였다.

결과: 2025년 수도권역에서 총 1,808명(전국 40.5%)의 온열질환자와 11명의 추정사망자(전국 37.9%)가 신고되었다. 전년 대비 증가율은 서울 60.9%, 인천 36.6%, 경기 27.5%, 강원 7.5%였으며, 서울·인천·경기는 전국 평균(20.4%)을 상회하였다. 연령 분포는 서울에서 65세 이상이 37.6% (80세 이상 19.6%)로 가장 높았고, 경기는 30-59세가 47.4%로 높아 작업장 관련 발생 양상이 상대적으로 두드러졌다. 주요 발생장소는 서울은 운동장(공원)·길가(46.0%), 인천과 경기는 실외작업장·길가(각 41.8%, 48.2%), 강원은 논밭·길가(34.3%) 순이었다.

결론: 서울·인천·경기·강원의 온열질환 신고 양상은 연령, 직업, 발생시간, 발생장소 등에서 지역별 차이를 보였으며, 시·군·구별 신고건수 분포에도 차이가 확인되었다. 이에 지역별 발생 특성과 신고건수 상위 시·군·구를 참고하여 지자체 폭염 대응체계와 연계한 예방관리 전략을 마련할 필요가 있다.

주요 검색어: 온열질환; 공중보건 감시; 폭염; 대한민국

서 론

기후변화에 따른 폭염의 강도와 빈도 증가는 전 세계적으로 건강위협 요인이 되고 있다[1]. 폭염일수는 일최고기온(00:01-24:00)이 33℃ 이상인 날의 수를 의미하며, 우리나라의 2025년 여름철(6-8월) 폭염일수는 전국 28.1일(역대 3위), 서울·인천·경기는 18.7일(역대 4위), 강원은 20.6일(역대 2위)이었다. 또한 전국 평균기온은 25.7℃로 1973년

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핵심요약

① 이전에 알려진 내용은?

질병관리청은 온열질환 응급실감시체계를 통해 폭염 기간 온열질환 발생현황을 모니터링하고 예방수칙을 안내해 왔다. 2025년 여름철 전국 평균기온 25.7℃로 1973년 기상관측 이후 가장 높았으며, 전국 온열질환자 4,460명 중 1,808명(40.5%)이 수도권역에서 신고되었다.

② 새로이 알게 된 내용은?

2025년 수도권역은 이른 더위의 영향으로 7월 한 달에만 온열질환자의 63.9% (1,156명)가 집중 신고되었다. 시 · 도별로는 연령, 직업, 발생시간, 발생장소의 분포에 차이가 있었으며, 서울은 고령층 비중과 오전 시간대 발생 비율이 상대적으로 높았고, 경기는 작업장 관련 발생 양상이, 강원은 농작업 관련 발생 양상이 상대적으로 두드러졌다.

③ 시사점은?

시 · 도별 발생 특성과 시 · 군 · 구별 신고건수 분포를 함께 고려한 폭염 예방관리가 필요하다. 신고건수 상위 시 · 군 · 구를 중심으로 지역별 취약요인을 점검하고, 지자체 폭염 대응체계와 연계한 예방홍보 및 관계기관 협력을 강화하는 것이 폭염 건강피해 최소화에 도움이 될 수 있다.

기상관측 이후 역대 1위였으며, 서울 · 인천 · 경기와 강원도 평균기온이 각 25.8℃ 및 24.9℃로 역대 1위를 기록하였다[2].

질병관리청 「온열질환 응급실감시체계」는 2011년부터 매년 폭염 기간동안 전국의 응급실 운영 의료기관 중 자발적 참여를 통해 응급실 내원 온열질환자 발생현황을 모니터링하여 신속히 정보를 공유함으로써 국민들의 주의를 환기하고 예방활동을 유도하여 건강 피해를 최소화하기 위해 운영하고 있다. 2025년에는 전국 516개 응급실 운영 의료기관이 참여하였으며, 이 중 수도권역에서는 212개 기관이 참여하였다.

수도권질병대응센터는 서울 · 인천 · 경기 · 강원 4개 지역을 관할하며, 응급실감시체계 자료 분석과 지자체 및 관계기관에 정보공유를 통해 폭염 건강피해 예방관리를 지원하고 있다. 이에 관할지역의 시 · 군 · 구별 신고건수 분포를 확인하는 것은 지역별 예방관리 지원 측면에서 의의가 있다.

2025년 「온열질환 응급실감시체계」 신고자료를 활용하여 수도권질병대응센터 관할지역의 온열질환 지역통계 현황을 성, 연령, 질환, 직업, 발생시간, 발생장소별로 비교하고, 시 · 군 · 구별 신고건수 분포를 확인하여 지역 특성을 고려한 폭염 건강피해 예방관리의 기초자료를 제공하고자 한다.

방 법

1. 자료원 및 대상

2025년 5월 15일부터 9월 25일까지 운영된 「온열질환 응급실감시체계」의 신고자료를 활용하였다. 분석 대상은 수도권질병대응센터 관할지역인 서울 · 인천 · 경기 · 강원에서 발생한 것으로 신고된 온열질환자(증상발생장소 기준)이며, 감시체계는 참여 의료기관의 응급실을 내원한 환자 중 온열질환 진단 또는 온열질환 추정 사망자를 신고 대상으로 한다[3]. 온열질환 주요증상 및 질병코드는 한국표준질병 · 사인분류(Korean Standard Classification of Diseases 8차 개정)를 기준(T67.0–T67.5, T67.7–T67.9)으로 하였다.

2. 분석 방법

(1) 시 · 도 비교: 4개 시 · 도 간 비교를 위해 발생자 특성(성별, 연령, 질환분류, 직업)과 발생상황 특성(발생시간, 발생장소)의 빈도 및 구성비(%)를 산출하였다. 연령은 10세 단위 및 65세 이상으로 재분류하였고, 질환은 열사병, 열실신, 열경련, 열탈진, 열부종, 기타, 발생시간은 00–06시, 06–12시, 12–17시, 17–24시의 4개 구간으로, 발생장소는 실내 · 외 구분 후 세부 장소로 구분하였다.

(2) 시 · 군 · 구 비교: 권역 내 95개 시 · 군 · 구 단위에서 환자 발생 수를 집계하고, 각 시 · 도별 신고건수 상위 시 · 군 · 구를 확인하였다.

지역 구분은 2019년부터 적용된 증상발생장소 기준을 따랐다. 다만 과거 추이 해석 시 2018년까지는 의료기관 소재지 기준이 적용되었음을 고려하였다. 기상자료는 기상청 기상자료개발포털의 지역별 일최고기온 자료를 참고하였다[4].

결 과

1. 발생자 특성

2025년 수도권역 4개 시 · 도에서 총 1,808명의 온열질환자가 신고되었으며, 이는 전국(4,460명)의 40.5%에 해당한다. 추정사망자는 11명으로 전국(29명)의 37.9%를 차지하였다. 전년 대비 증가율은 서울 60.9%, 인천 36.6%, 경기 27.5%, 강원 7.5%로 전국 평균 증가율(20.4%)을 서울 · 인천 · 경기 3개 시 · 도가 크게 상회하였다.

2025년은 최근 10년(2016–2025년) 감시기간 중 두 번째로 온열질환자가 많이 발생한 해였다(그림 1). 장마철 이후인 7월 말부터 본격적 무더위가 시작되었던 예년과 달리 이례적으로 한 달 가량 일찍 더위가 찾아와 7월 한 달에만 수도권역 환자의 63.9% (1,156명)가 집중 발생하였다.

2025년 수도권역 온열질환자의 성별 분포는 남자 78.5% (1,420명), 여자 21.5% (388명)로 남자가 여자의 약 3.7배였다. 연령 분포는 시 · 도 간 뚜렷한 차이를 보였다(표 1) [5,6]. 서울은 65세 이상 고령층이 37.6% (142명)로 4개 시 · 도 중 가장 높았으며, 특히 80세 이상이 19.6%에 달해 인천 · 경기 · 강원의 약 2–2.5배에 해당하였다. 인천은 60대가 19.6% (55명)로 가장 많았으나 전 연령대에 비교적 고르게 분포하였고, 경기는 30–59세 생산가능인구가 47.4% (464명)로 가장 많아 근로현장 중심의 발생 패턴을 보였다. 강원은 60대 (20.3%) 및 70대 이상(19.2%)이 많아 고령 농업인구와의 관련성을 시사하였다.

질환별로는 4개 시 · 도 모두 열탈진이 가장 많았고, 다음으로 열사병 순이었다. 다만 중증도가 높은 열사병의 상대 비중은 서울(23.5%)과 강원(22.7%)이 인천 · 경기(14.0–14.3%)의 약 1.6배 수준이었다.

직업별로는 경기는 단순노무종사자가 28.9% (283명)로 가장 많아 작업장 관련 발생 가능성을 시사하였고, 서울은 무직(26.5%)과 미상(24.3%) 비중이 높아 도심 고령층 및 취약계층에 대한 예방관리 필요성을 시사하였다. 강원은 농림어업 숙련종사자가 14.5%로 전국 평균(7.8%)의 약 1.9배였다.

2. 발생상황 특성

발생시간대 분석 결과, 4개 시 · 도 모두 가장 더운 12–17시 시간대에 환자가 집중되었다(서울 38.6%, 인천 51.8%, 경기 48.7%, 강원 43.0%). 특히 서울은 06–12시 오전 시

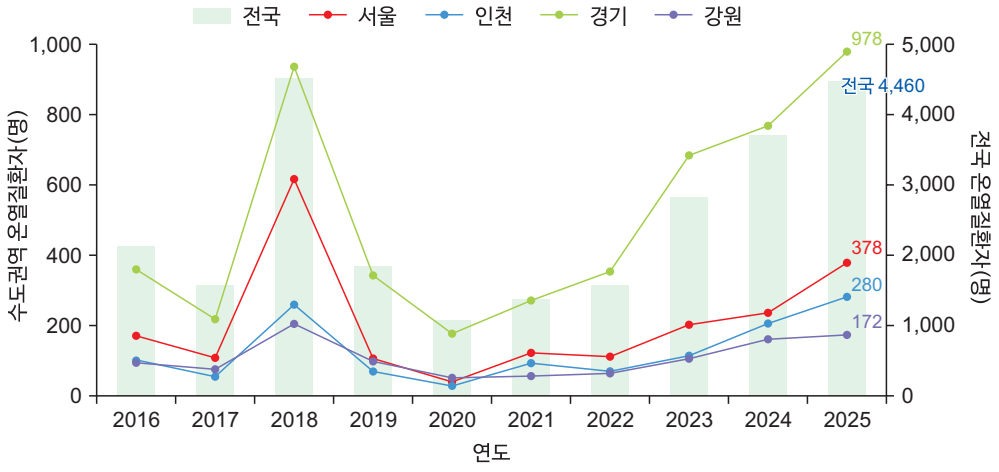

그림 1. 2016–2025년 전국 및 수도권역 온열질환자 발생추이

표 1. 2025년 수도권역 발생자 특성에 따른 온열질환자 발생현황

구분	전국	서울	인천	경기	강원
전체	4,460 (100.0)	378 (100.0)	280 (100.0)	978 (100.0)	172 (100.0)
성별					
남자	3,553 (79.7)	285 (75.4)	206 (73.6)	802 (82.0)	127 (73.8)
여자	907 (20.3)	93 (24.6)	74 (26.4)	176 (18.0)	45 (26.2)
연령(세)					
0–9	9 (0.2)	0 (0.0)	3 (1.1)	3 (0.3)	0 (0.0)
10–19	132 (3.0)	11 (2.9)	13 (4.6)	35 (3.6)	5 (2.9)
20–29	445 (10.0)	35 (9.3)	42 (15.0)	108 (11.0)	24 (14.0)
30–39	608 (13.6)	59 (15.6)	35 (12.5)	153 (15.6)	30 (17.4)
40–49	603 (13.5)	41 (10.8)	35 (12.5)	127 (13.0)	15 (8.7)
50–59	865 (19.4)	69 (18.3)	34 (12.1)	184 (18.8)	30 (17.4)
60–69	834 (18.7)	38 (10.1)	55 (19.6)	186 (19.0)	35 (20.3)
70–79	485 (10.9)	51 (13.5)	34 (12.1)	106 (10.8)	15 (8.7)
≥80	479 (10.7)	74 (19.6)	29 (10.4)	76 (7.8)	18 (10.5)
≥65	1,341 (30.1)	142 (37.6)	91 (32.5)	258 (26.4)	53 (30.8)
온열질환 종류[a)]					
열사병	667 (15.0)	89 (23.5)	40 (14.3)	137 (14.0)	39 (22.7)
열탈진	2,767 (62.0)	183 (48.6)	180 (64.3)	637 (65.1)	97 (56.4)
열경련	613 (13.7)	33 (8.9)	33 (11.8)	121 (12.4)	14 (8.1)
열실신	345 (7.7)	70 (18.9)	26 (9.3)	73 (7.5)	21 (12.2)
열부종	3 (0.1)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)
기타	65 (1.5)	3 (0.8)	0 (0.0)	10 (1.0)	1 (0.6)
직업					
관리자	42 (0.9)	1 (0.3)	3 (1.1)	10 (1.0)	0 (0.0)
전문가 및 관련종사자	184 (4.1)	13 (3.4)	15 (5.4)	39 (4.0)	2 (1.2)
사무종사자	105 (2.4)	18 (4.8)	4 (1.4)	21 (2.1)	8 (4.7)
서비스종사자	128 (2.9)	15 (4.0)	17 (6.1)	31 (3.2)	8 (4.7)
판매종사자	40 (0.9)	5 (1.3)	3 (1.1)	6 (0.6)	1 (0.6)
농림어업숙련종사자	348 (7.8)	2 (0.5)	8 (2.9)	46 (4.7)	25 (14.5)
기능원 및 관련기능종사자	114 (2.6)	10 (2.6)	2 (0.7)	32 (3.3)	7 (4.1)
장치 기계조작 및 조립 종사자	166 (3.7)	8 (2.1)	10 (3.6)	25 (2.6)	5 (2.9)
단순노무종사자	1,160 (26.0)	49 (13.0)	75 (26.8)	283 (28.9)	12 (7.0)
군인	100 (2.2)	3 (0.8)	16 (5.7)	45 (4.6)	8 (4.7)
주부	156 (3.5)	10 (2.6)	3 (1.1)	31 (3.2)	5 (2.9)
학생	166 (3.7)	17 (4.5)	13 (4.6)	38 (3.9)	5 (2.9)
무직(노숙인 제외)	589 (13.2)	100 (26.5)	50 (17.9)	102 (10.4)	19 (11.0)
노숙인	8 (0.2)	1 (0.3)	1 (0.4)	1 (0.1)	0 (0.0)
미상	657 (14.7)	92 (24.3)	38 (13.6)	154 (15.7)	52 (30.2)
기타	497 (11.1)	34 (9.0)	22 (7.9)	114 (11.7)	15 (8.7)
발생시간(시)					
00–06	88 (2.0)	9 (2.4)	10 (3.6)	21 (2.1)	2 (1.2)
06–12	1,264 (28.3)	146 (38.6)	54 (19.3)	256 (26.2)	48 (27.9)
12–17	2,151 (48.2)	146 (38.6)	145 (51.8)	476 (48.7)	74 (43.0)
17–24	957 (21.5)	77 (20.4)	71 (25.4)	225 (23.0)	48 (27.9)

표 1. 계속

구분	전국	서울	인천	경기	강원
발생장소					
실외	3,534 (79.2)	283 (74.9)	202 (72.1)	785 (80.3)	147 (85.5)
실내	926 (20.8)	95 (25.1)	78 (27.9)	193 (19.7)	25 (14.5)

단위: 명(%). Data from Korea Disease Control and Prevention Agency (2025) [5]. [a]온열질환 종류[6]: 열사병=심부체온 40℃ 이상, 신경학적 장애 동반; 열탈진=심부체온 38–40℃, 의식변화 없이 경도의 체온조절 장애, 탈수 및 전신쇠약 증상 동반; 열경련=과도한 발한으로 인한 전해질 불균형으로 나타나는 근육경련; 열실신=열발산을 위한 혈관확장으로 일시적으로 뇌혈류 감소, 기립성 저혈압으로 인한 실신; 열부종=손, 발이나 발목의 부종; 기타=기타 열 및 빛의 영향, 상세불명의 열 및 빛의 영향.

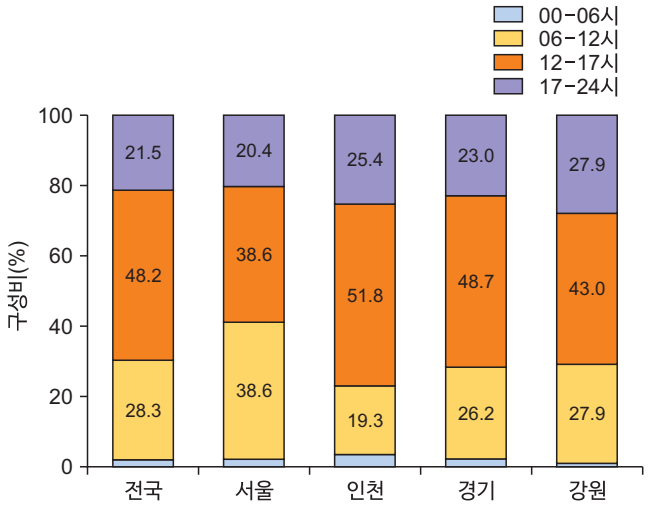

그림 2. 2025년 수도권역 시·도별 및 발생시간별 온열질환자 분포

간대 발생률도 38.6%로 12–17시와 동일하게 높아, 인천(19.3%) · 경기(26.2%) · 강원(27.9%)의 약 1.4–2.0배에 달하였다(그림 2). 이는 서울에서 오전 시간대 마라톤 등 야외활동 또는 이동 중 폭염 노출이 일부 반영되었을 가능성을 시사한다.

발생장소 분포는 4개 시 · 도 공통적으로 실외 발생 비율이 실내보다 약 3–6배 높았으며, 세부 장소는 지역별로 뚜렷한 차이를 보였다(그림 3). 서울은 길가(38.1%)와 운동장 · 공원(7.9%)이 46.0%를 차지하여 도심 야외 활동 · 이동 중 발생 특성을 반영하였다. 인천과 경기는 실외작업장(각 25.7%, 37.2%)과 길가(16.1%, 10.9%)에서 가장 많이 발생하여 산업 · 건설 현장의 영향이 두드러졌고, 강원은 논밭(18.1%)과 길가(16.3%), 실외작업장(15.1%)에서 고르게 발생하여 농촌형 · 혼합형 특성을 보였다. 실내 발생에서는 서울의 집(13.5%, 51명), 인천의 실내작업장(12.1%, 34명) 비중이 상대적으로 확인되어 실내 폭염 노출 관리 필요성을 시사하였다. 다만 개별 냉방 여건, 거주형태, 작업환경과의 관련성은 본 자료만으로 확인하기 어렵다.

3. 시·군·구 비교

수도권역 95개 시 · 군 · 구(행정구역) 단위로 온열질환자 수를 비교한 결과 권역별로 서울은 영등포구(43명), 마포구(32명), 인천은 서구(80명), 계양구 · 미추홀구(각 34명, 33명), 경기는 파주시(80명), 평택시(72명), 화성시(58명), 강원은 춘천시(32명), 강릉시(26명) 순으로 높았다(보충 그림 1; available online). 이는 같은 관할지역 내에서도 시 · 군 · 구별 신고건수 분포에 차이가 있음을 보여주며, 폭염 예방관리 자원 배분 및 현장점검 시 참고자료로 활용될 수 있다.

논 의

1. 주요 결과

2025년 수도권역 4개 시 · 도의 온열질환 발생 특성 비교 분석 결과 지역별 인구 · 직업 · 발생장소 특성에 도시화 수준, 산업구조, 인구 고령화 정도 등에 따라 온열질환 신고 양상이 다르게 나타났다. 이러한 차이는 획일적 폭염 대응이 아닌 지역 맞춤형 예방 전략이 필요함을 시사한다.

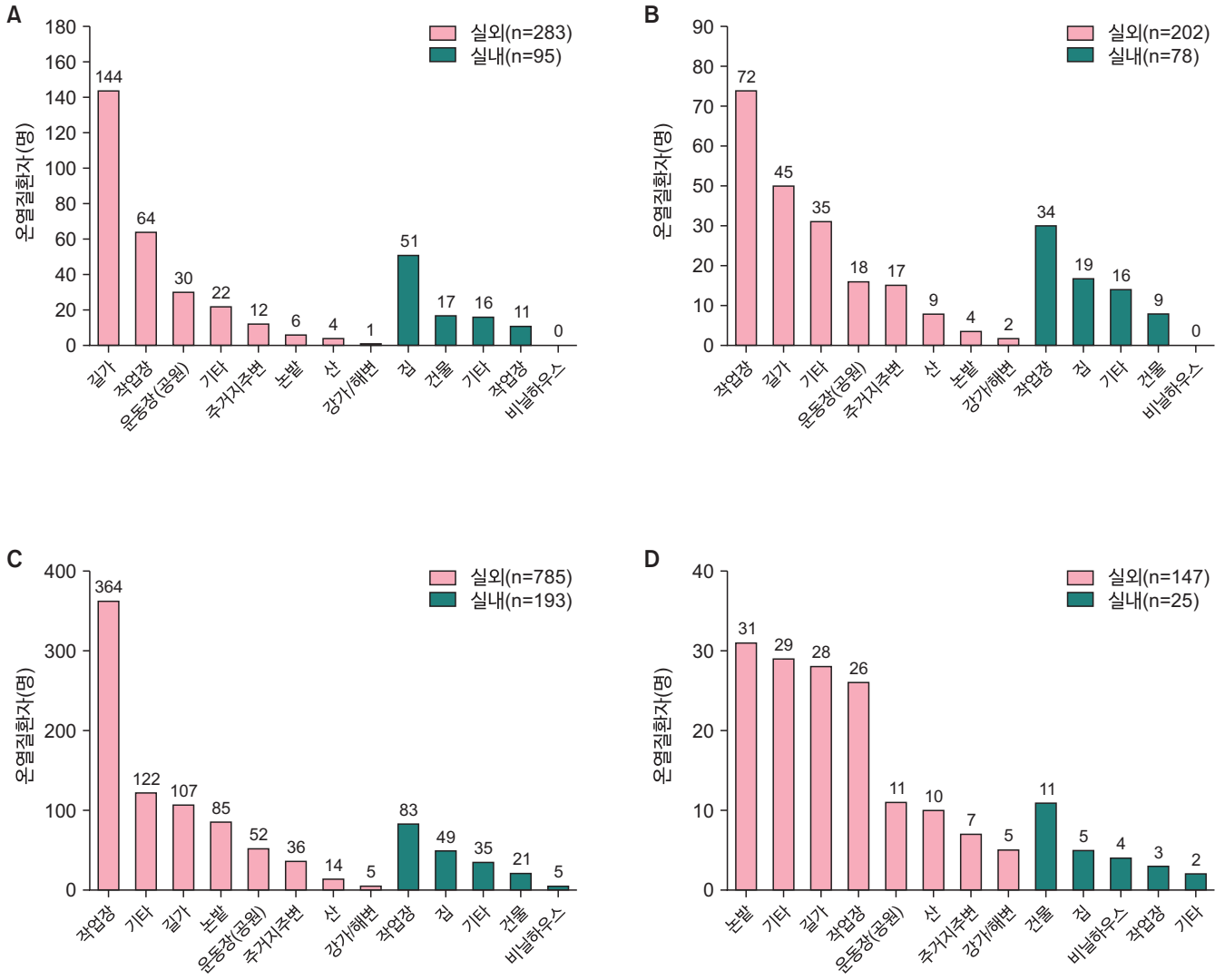

그림 3. 2025년 수도권역 시·도 및 발생장소별 온열질환자 분포
(A)서울, (B)인천, (C)경기, (D)강원.

2. 지역별 맞춤형 대응 전략

서울은 도심 고령층 및 취약계층의 폭염 노출 가능성을 고려한 예방홍보와 건강피해 모니터링이 필요하며, 인천 · 경기는 실내외 작업장 중심의 예방관리, 강원은 농작업 관련 예방홍보와 현장점검 등 지자체 폭염 대응체계와 연계한 관리가 필요하다.

3. 시·군·구 단위 우선 관리

권역별 신고건수 상위 시 · 군 · 구는 지자체 폭염 대응계획 수립, 예방홍보 대상 선정, 관계기관 현장점검 시 참고할 수 있다. 특히 경기 북부 · 중부 산업지역과 인천 서부 지역 등은 2026년 폭염 시즌 전 작업장 · 야외활동 관련 예방관리 현황을 점검할 때 우선적으로 고려할 수 있다.

4. 연구의 제한점 및 향후 과제

본 연구는 응급실 자발적 참여 기반 신고자료를 활용한 생태학적 분석으로 온열질환 발생 전체를 대표하지 않으며 개인 수준 위험요인 규명에는 한계가 있다. 또한 시 · 군 · 구별 비교는 인구 규모와 연령구조를 보정하지 않은 신고건수 기준 분석이므로, 신고건수 상위 지역을 지역별 온열질환 위험도가

높은 지역으로 직접 해석하는 데에는 제한이 있다. 또한 온열질환 발생장소가 증상발생장소 기준이기 때문에 거주지와 증상발생장소가 다른 환자가 포함될 수 있으며, 이에 따라 지역별 신고건수 해석에 제한이 있다.

향후 지역사회건강조사 · 기상 자료 등을 연계한 시 · 군 · 구 단위 분석을 통해 지역별 취약요인을 정량화하고, 온열질환 발생 가능성이 높은 지역을 사전에 파악하기 위한 예측 모형 개발이 필요하다.

질병관리청 수도권질병대응센터는 응급실 기반 온열질환 감시체계 자료의 신속한 정보공유와 지자체 등 관계기관과의 협력을 통해 폭염 건강피해 예방관리를 지원하고, 관할지역의 발생현황 분석 결과를 지속적으로 제공할 계획이다.

Declarations

Ethics Statement: Not applicable.

Funding Source: None.

Acknowledgments: We thank the 212 participating medical institutions with emergency departments and relevant local health authorities in Seoul, Incheon, Gyeonggi, and Gangwon for their cooperation in the Heat-Related Illness Emergency Department Surveillance System.

Conflict of Interest: The authors have no conflicts of interest to declare.

Author Contributions: Conceptualization: HKO, SRS, SJN. Data curation: SJN. Formal analysis: SJN, SRS. Methodology: SJN, SRS. Visualization: SJN, SRS. Validation: SRS, HKO. Supervision: HKO. Writing − original draft: SJN. Writing − review & editing: SRS, HKO.

Supplementary Materials

Supplementary data are available online.

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Surveillance/Survey Report

Regional Distribution and Characteristics of Heat-Related Illnesses in the Capital Region in 2025: Focusing on Seoul, Incheon, Gyeonggi, Gangwon

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ABSTRACT

Objectives: This study aims to evaluate the regional patterns and characteristics of heat-related illnesses across Seoul, Incheon, Gyeonggi, and Gangwon, which are under the jurisdiction of the Capital Regional Center for Disease Control and Prevention. Data were obtained from the 2025 Heat-Related Illness Emergency Department Surveillance System of the Korea Disease Control and Prevention Agency.

Methods: Data were collected from May 15 to September 25, 2025. The surveillance system was based on the voluntary participation of emergency medical institutions, with 516 hospitals participating nationwide and 212 within the designated study area. Reported cases and suspected deaths were classified according to the place where the symptoms occurred, and regional characteristics and the distribution of cases at the city/country/district level were analyzed.

Results: In 2025, there were 1,808 cases of heat-related illness and 11 suspected deaths recorded within the study area, accounting for 40.5% and 37.9% of the national totals, respectively. Compared with the previous year, reported cases increased by 60.9% in Seoul, 36.6% in Incheon, 27.5% in Gyeonggi, and 7.5% in Gangwon. These increases exceeded the national average increase of 20.4%. The proportion of patients aged 65 years or older was highest in Seoul (37.6%), whereas patients aged 30–59 years accounted for 47.4% of cases in Gyeonggi, where workplace-related occurrences were relatively prominent. The most common settings where heat-related illnesses occurred differed by region: roadsides and sports fields or parks in Seoul, outdoor worksites and roadsides in Incheon and Gyeonggi, and fields and roadsides in Gangwon.

Conclusions: The data demonstrate that the incidence of heat-related illnesses in Seoul, Incheon, Gyeonggi, and Gangwon varied by age, occupation, timing, and location, with case distributions also varying at the local (city/country/district) level. These findings suggest that prevention strategies should consider these regional characteristics and distributions patterns into account and be developed in coordination with local government heatwave response systems.

Key words: Heat stress disorders; Public health surveillance; Extreme heat; Republic of Korea

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Key messages

① What is known previously?

Korea Disease Control and Prevention Agency monitors heat-related illness through emergency department surveillance and provides guidance on prevention. During the summer of 2025, the Republic of Korea experienced its highest average temperature since 1973. Of the 4,460 heat-related medical cases recorded across the country, 1,808 (40.5%) occurred in the capital region.

② What new information is presented?

In July, 63.9% of all capital region cases were reported. Regional patterns differed, with older and morning-onset cases more common in Seoul, workplace-related casess in Gyeonggi, and agricultural work-related cases in Gangwon.

③ What are implications?

Heatwave mitigation strategies should incorporate regional profiles and case distributions at the city/country/district level while coordinating with local government response frameworks.

Introduction

The increase in the intensity and frequency of heat waves due to climate change is a global health risk factor [1]. The number of heatwave days refers to the number of days with a daily maximum temperature (00:01–24:00) of 33°C or higher. During the Republic of Korea's 2025 summer season (June–August), the number of heatwave days was 28.1 nationwide (3rd highest on record); 18.7 in Seoul, Incheon, and Gyeonggi (4th highest on record); and 20.6 in Gangwon (2nd highest on record). Additionally, the national average temperature was 25.7°C, ranking 1st on record since meteorological observations began in 1973, and the average temperatures in Seoul, Incheon, and Gyeonggi and in Gangwon also ranked 1st on record at 25.8°C and 24.9°C, respectively [2].

The Korea Disease Control and Prevention Agency's "Heat-Related Illnesses Emergency Department System" has been operated annually since 2011 during heatwave periods to minimize health damage by monitoring the occurrence of patients with heat-related illness presenting to emergency departments through the voluntary participation of healthcare institutions operating emergency rooms nationwide, and by promptly sharing this information to raise public awareness and encourage preventive activities. In 2025, 516 healthcare institutions operating emergency departments nationwide participated, and of these, 212 institutions in the capital region-participated.

The Capital Region Disease Control and Prevention Center has jurisdiction over the four regions of Seoul, Incheon, Gyeonggi, and Gangwon and supports the prevention and control of heatwave-related health damage through analysis of data from the Emergency Department Surveillance System and information sharing with local governments and related agencies. Therefore, examining the distribution of reported cases by city (si), county (gun), and district (gu) within the jurisdictional area is important in terms of providing support for regional prevention and control.

This study aims to provide foundational data for the prevention and control of heatwave-related health damage, considering regional characteristics, by utilizing surveillance data from the 2025 "Heat-Related Illnesses Emergency Department System" to compare regional statistics on heat-related illnesses in the jurisdiction of the The Capital Regional Centers for Disease Control and Prevention by sex, age, disease classification, occupation, time of onset, and place of occurrence, and to

identify the distribution of reported cases by city, county, and district.

Methods

1. Data Sources and Population

Reported data from the "Heat-Related Illnesses Emergency Department System," operated from May 15 to September 25, 2025, were utilized. The subjects of the analysis included patients with heat-related illness reported in Seoul, Incheon, Gyeonggi, and Gangwon, the jurisdictions of the Capital Regional Centers for Disease Control and Prevention (based on the location of symptom onset). The Surveillance System designates as reportable cases patients who visited the emergency rooms of participating healthcare institutions and were diagnosed with a heat-related illness or were a suspected death from a heat-related illness [3]. The major symptoms and disease codes of heat-related illnesses were based on the Korean Standard Classification of Diseases and Causes of Death (8th Revision, Korean Standard Classification of Diseases-8) (T67.0–T67.5, T67.7–T67.9).

2. Analytical Methods

(1) Comparison by city/province: To compare among the four cities and provinces, the frequency and proportion (%) of case characteristics (sex, age, disease classification, and occupation) and occurrence characteristics (time of onset and place of occurrence) were calculated. Age was reclassified into 10-year increments and 65 years and older; disease was classified as heatstroke, heat syncope, heat cramps, heat exhaustion, heat edema, and other; time of onset was divided into four periods: 00:00–06:00, 06:00–12:00, 12:00–17:00, and 17:00–24:00; and place of occurrence was classified as indoor or outdoor and then by specific location.

(2) Comparison by city/county/district: Case counts were aggregated from 95 cities, counties, and districts within the region, and the cities, counties, and districts with the highest number of reported cases were identified for each city and province.

Regional categorization followed the location of symptom onset criterion that has been used since 2019. However, when interpreting past trends, the criterion based on the location of healthcare institutions was applied until 2018. Meteorological data on regional daily maximum temperatures were obtained from the Weather Data Open Portal of the Korea Meteorological Administration [4].

Results

1. Case Characteristics

In 2025, a total of 1,808 heat-related illness cases and 11 suspected heat-related deaths were reported in Seoul, Incheon, Gyeonggi, and Gangwon, accounting for 40.5% and 37.9% of the national totals, respectively. Compared with the previous year, the number of reported cases increased by 60.9% in Seoul, 36.6% in Incheon, 27.5% in Gyeonggi, and 7.5% in Gangwon. The increases observed in Seoul, Incheon, and Gyeonggi exceeded the national increase of 20.4%.

During the 10-year surveillance period from 2016 to 2025, 2025 recorded the second-highest number of heat-related illness cases (Figure 1). Unusually high temperatures began approximately one month earlier in 2025. Consequently, 1,156 cases (63.9%) occurred in July, indicating an earlier concentration of heat-related illnesses than in previous years.

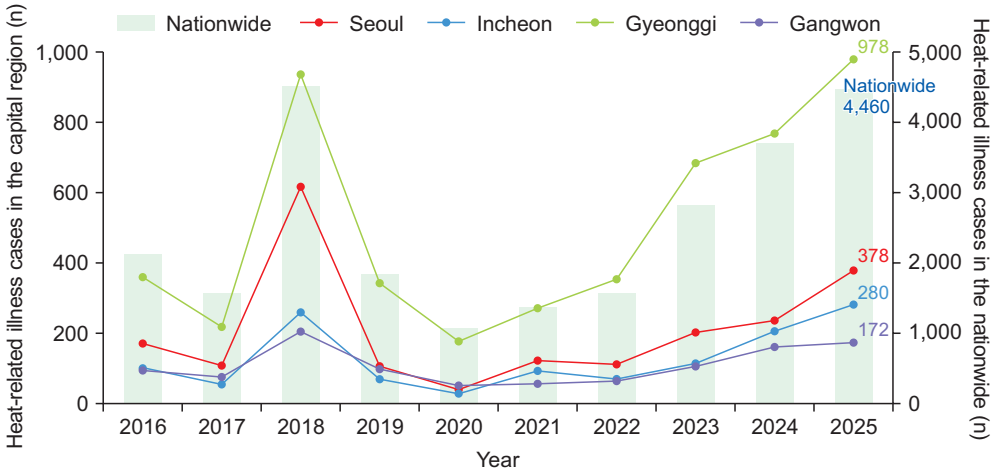

Figure 1. Trends in heat-related illness cases across the nationwide and capital region (2016–2025)

In 2025, the sex distribution of patients with heat-related illness in the capital region was 78.5% male (1,420) and 21.5% female (388), with the number of males being approximately 3.7 times that of females. The age distribution showed marked differences among cities and provinces (Table 1) [5,6]. In Seoul, the population aged 65 and older accounted for 37.6% (142 people), the highest among the four cities and provinces, and in particular, the population aged 80 and older was 19.6%, approximately 2–2.5 times that of Incheon, Gyeonggi, and Gangwon. In Incheon, people in their 60s were the most common group at 19.6% (55 people), but the distribution was relatively even across all age groups. In Gyeonggi, the working-age population aged 30–59 was the largest group at 47.4% (464 people), showing a workplace-centered occurrence pattern. In Gangwon, the high proportions of people in their 60s (20.3%) and 70s and older (19.2%) suggested an association with the elderly farming population.

By disease classification, heat exhaustion was the most common in all four cities and provinces, followed by heatstroke. However, the relative proportion of heatstroke, a severe heat-related illness, was approximately 1.6 times higher in Seoul (23.5%) and Gangwon (22.7%) than in Incheon and Gyeonggi (14.0–14.3%).

By occupation, in Gyeonggi, unskilled laborers accounted for the largest proportion at 28.9% (283 individuals), suggesting the possibility of workplace-related transmission, while in Seoul, the high proportions of unemployed (26.5%) and unknown (24.3%) individuals suggested the need for prevention and control for the elderly and vulnerable populations in urban areas. In Gangwon, the percentage of skilled agricultural, forestry, and fishery workers was 14.5%, approximately 1.9 times the national average (7.8%).

2. Occurrence Characteristics

An analysis of the time of onset showed that patients in all four cities and provinces were concentrated during the hottest time period of 12:00–17:00 (Seoul 38.6%, Incheon 51.8%, Gyeonggi 48.7%, and Gangwon 43.0%). In particular, in Seoul, the incidence rate during the morning hours of 06:00–12:00 was 38.6%, as high as the rate during 12:00–17:00, and was approximately 1.4–2.0 times that of Incheon (19.3%), Gyeonggi (26.2%), and Gangwon (27.9%) (Figure 2). This finding suggests that heatwave exposure during morning outdoor activities, such as marathons, or during transit in Seoul

Table 1. 2025 Status of heat-related illness cases and their occurrence patterns in the capital regional

Classification	Nationwide	Seoul	Incheon	Gyeonggi	Gangwon
Total	4,460 (100.0)	378 (100.0)	280 (100.0)	978 (100.0)	172 (100.0)
Sex					
Male	3,553 (79.7)	285 (75.4)	206 (73.6)	802 (82.0)	127 (73.8)
Female	907 (20.3)	93 (24.6)	74 (26.4)	176 (18.0)	45 (26.2)
Age group (yr)					
0–9	9 (0.2)	0 (0.0)	3 (1.1)	3 (0.3)	0 (0.0)
10–19	132 (3.0)	11 (2.9)	13 (4.6)	35 (3.6)	5 (2.9)
20–29	445 (10.0)	35 (9.3)	42 (15.0)	108 (11.0)	24 (14.0)
30–39	608 (13.6)	59 (15.6)	35 (12.5)	153 (15.6)	30 (17.4)
40–49	603 (13.5)	41 (10.8)	35 (12.5)	127 (13.0)	15 (8.7)
50–59	865 (19.4)	69 (18.3)	34 (12.1)	184 (18.8)	30 (17.4)
60–69	834 (18.7)	38 (10.1)	55 (19.6)	186 (19.0)	35 (20.3)
70–79	485 (10.9)	51 (13.5)	34 (12.1)	106 (10.8)	15 (8.7)
≥80	479 (10.7)	74 (19.6)	29 (10.4)	76 (7.8)	18 (10.5)
≥65	1,341 (30.1)	142 (37.6)	91 (32.5)	258 (26.4)	53 (30.8)
Type of heat-related illness[a)]					
Heat stroke	667 (15.0)	89 (23.5)	40 (14.3)	137 (14.0)	39 (22.7)
Heat exhaustion	2,767 (62.0)	183 (48.6)	180 (64.3)	637 (65.1)	97 (56.4)
Heat cramps	613 (13.7)	33 (8.9)	33 (11.8)	121 (12.4)	14 (8.1)
Heat syncope	345 (7.7)	70 (18.9)	26 (9.3)	73 (7.5)	21 (12.2)
Heat edema	3 (0.1)	0 (0.0)	1 (0.4)	0 (0.0)	0 (0.0)
Other	65 (1.5)	3 (0.8)	0 (0.0)	10 (1.0)	1 (0.6)
Occupation					
Managers	42 (0.9)	1 (0.3)	3 (1.1)	10 (1.0)	0 (0.0)
Professionals and related workers	184 (4.1)	13 (3.4)	15 (5.4)	39 (4.0)	2 (1.2)
Office workers	105 (2.4)	18 (4.8)	4 (1.4)	21 (2.1)	8 (4.7)
Service workers	128 (2.9)	15 (4.0)	17 (6.1)	31 (3.2)	8 (4.7)
Sales workers	40 (0.9)	5 (1.3)	3 (1.1)	6 (0.6)	1 (0.6)
Agriculture, forestry, and fishery workers	348 (7.8)	2 (0.5)	8 (2.9)	46 (4.7)	25 (14.5)
Craft and related trades workers	114 (2.6)	10 (2.6)	2 (0.7)	32 (3.3)	7 (4.1)
Machine operators and assemblers	166 (3.7)	8 (2.1)	10 (3.6)	25 (2.6)	5 (2.9)
Elementary workers	1,160 (26.0)	49 (13.0)	75 (26.8)	283 (28.9)	12 (7.0)
Soldiers	100 (2.2)	3 (0.8)	16 (5.7)	45 (4.6)	8 (4.7)
Housewives	156 (3.5)	10 (2.6)	3 (1.1)	31 (3.2)	5 (2.9)
Students	166 (3.7)	17 (4.5)	13 (4.6)	38 (3.9)	5 (2.9)
Unemployed (excluding homeless)	589 (13.2)	100 (26.5)	50 (17.9)	102 (10.4)	19 (11.0)
Homeless	8 (0.2)	1 (0.3)	1 (0.4)	1 (0.1)	0 (0.0)
Unknown	657 (14.7)	92 (24.3)	38 (13.6)	154 (15.7)	52 (30.2)
Others	497 (11.1)	34 (9.0)	22 (7.9)	114 (11.7)	15 (8.7)
Timing (hr)					
00–06	88 (2.0)	9 (2.4)	10 (3.6)	21 (2.1)	2 (1.2)
06–12	1,264 (28.3)	146 (38.6)	54 (19.3)	256 (26.2)	48 (27.9)
12–17	2,151 (48.2)	146 (38.6)	145 (51.8)	476 (48.7)	74 (43.0)
17–24	957 (21.5)	77 (20.4)	71 (25.4)	225 (23.0)	48 (27.9)

Table 1. Continued

Classification	Nationwide	Seoul	Incheon	Gyeonggi	Gangwon
Location					
Outdoors	3,534 (79.2)	283 (74.9)	202 (72.1)	785 (80.3)	147 (85.5)
Indoors	926 (20.8)	95 (25.1)	78 (27.9)	193 (19.7)	25 (14.5)

Unit: n (%). Data from Korea Disease Control and Prevention Agency (2025) [5]. [a]Types of heat-related illnesses include the following [6]: heat stroke=defined as a core body temperature of ≥40°C with neurological impairment; heat exhaustion=defined as a core body temperature of 38–40°C without altered mental status and accompanied by dehydration and generalized weakness; heat cramps=defined as painful muscle spasms due to electrolyte imbalance resulting from excessive sweating; heat syncope=defined as transient loss of consciousness due to peripheral vasodilation and orthostatic hypotension; heat-edema=swelling of the hands, feet, or ankles; other=effects of heat and light, and unspecified effects of heat and light.

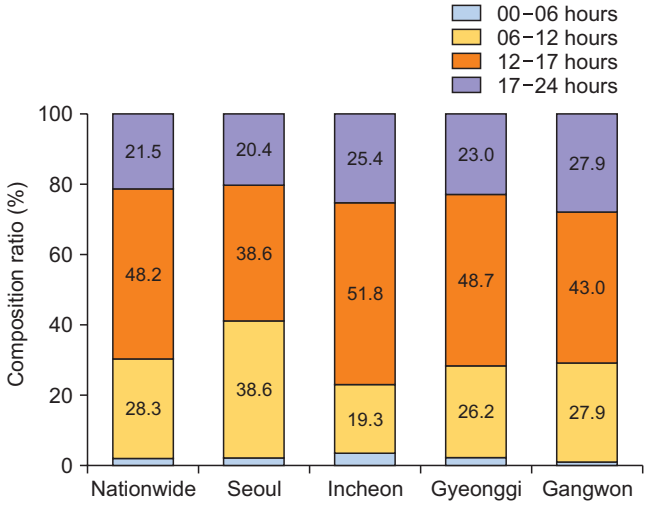

Figure 2. Heat-related illness case distribution in the capital region by city/country/district and time of occurrence (2025)

may have been partially reflected.

The distribution of place of occurrence showed that the proportion of outdoor occurrences was approximately 3–6 times higher than that of indoor occurrences across all four cities and provinces, and specific locations showed distinct regional differences (Figure 3). In Seoul, streetside (38.1%) and athletic fields and parks (7.9%) accounted for 46.0% of occurrences, reflecting the characteristics of occurrence during urban outdoor activities and transit. In Incheon and Gyeonggi, the highest incidence was at outdoor workplaces (25.7% and 37.2%, respectively) and roadsides (16.1% and 10.9%), showing the prominent influence of industrial and construction sites. In Gangwon, incidence was evenly distributed among rice paddies and fields (18.1%), roadsides (16.3%), and outdoor workplaces (15.1%), exhibiting rural-type and mixed-type characteristics. Among indoor cases, homes in Seoul (13.5%, 51 persons) and indoor workplaces in Incheon (12.1%, 34 persons) accounted for relatively high proportions, suggesting the need to manage indoor heatwave exposure. However, the association with individual cooling conditions, housing type, and work environment is difficult to determine from this data alone.

3. Comparison by City/County/District

A comparison of the number of patients with heat-related illness across 95 city/county/district (administrative district) units in the capital region showed that, by region, the numbers were highest in the following order: in Seoul, Yeongdeungpo-gu (43) and Mapo-gu (32); in Incheon, Seo-gu (80), and Gyeyang-gu and Michuhol-gu (34 and 33, respectively); in Gyeonggi, Paju-si (80), Pyeongtaek-si (72), and Hwaseong-si (58); and in Gangwon, Chuncheon-si (32) and Gangneung-si (26) (Supplementary Figure 1; available online). This finding shows that the distribution of the number of reported cases

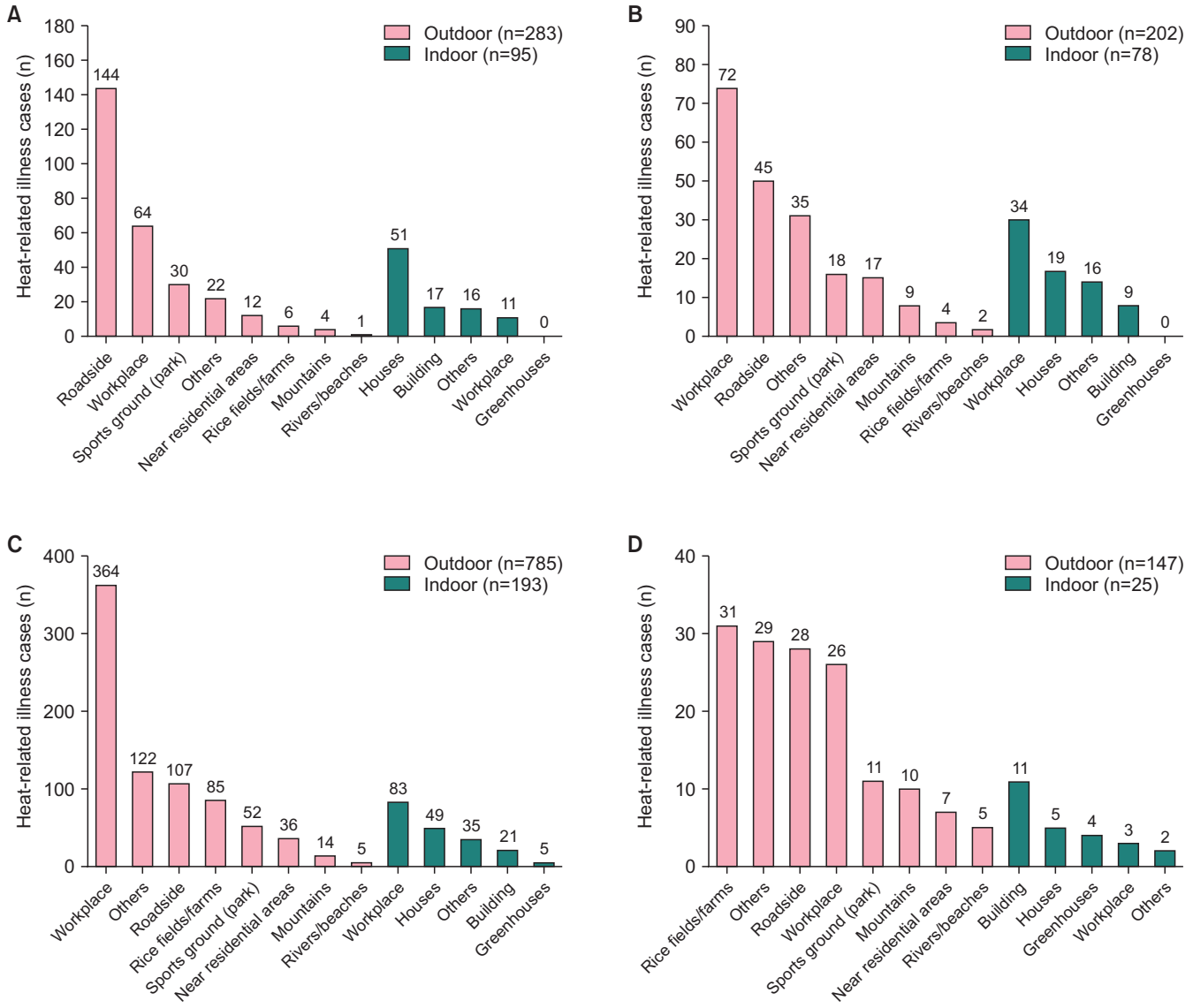

Figure 3. Heat-related illness case distribution in the capital region by city/country/district and location of occurrence (2025)
(A) Seoul, (B) Incheon, (C) Gyeonggi, (D) Gangwon.

differs by city, county, and district even within the same jurisdiction, and can be used as a reference for resource allocation and on-site inspections for heatwave prevention and control.

Discussion

1. Key Results

The results of a 2025 comparative analysis of the characteristics of heat-related illness occurrence in the four cities and provinces of the capital region showed that patterns of reported heat-related illness differed by regional population, occupational, and place of occurrence characteristics, depending on the level of urbanization, industrial structure, and degree of population aging. These differences suggest the need for region-specific preventive strategies rather than a uniform heat wave response.

2. Region-Specific Tailored Response Strategy

In Seoul, preventive public awareness and health impact monitoring are necessary, considering the potential heatwave exposure of the urban elderly and vulnerable populations; Incheon and Gyeonggi require prevention and control focused on indoor and outdoor workplaces, and Gangwon requires preventive public awareness and on-site inspections related to agricultural work, with such management needing to be linked with the local governments' heatwave response systems.

3. Priority Management at the City/County/District Level

The top cities, counties, and districts by region in the number of reported cases can be used as a reference for establishing local government heatwave response plans, selecting targets for prevention and public awareness, and conducting on-site inspections by relevant agencies. In particular, areas such as the northern and central Gyeonggi industrial areas and the western Incheon area can be prioritized when reviewing the status of prevention and control for workplaces and outdoor activities before the 2026 heatwave season.

4. Study Limitations and Future Directions

This study is an ecological analysis using surveillance data based on voluntary participation from emergency rooms; therefore, it does not represent the entire incidence of heat-related illness and has limitations in identifying individual-level risk factors. Also, the comparison by city/county/district is an analysis based on the number of reported cases not adjusted for population size and age structure; therefore, there are limitations in directly interpreting regions with a high number of reported cases as areas with a high risk of heat-related illness. Furthermore, because the place of occurrence of heat-related illness is based on the location of symptom onset, patients whose residence differs from the location of symptom onset may be included, and accordingly, there are limitations in the interpretation of the number of reported cases by region.

In the future, it is necessary to quantify regional vulnerability factors and develop a predictive model to identify, in advance, areas with a high likelihood of heat-related illness occurrence through city/county/district-level analysis that links data from sources such as the Community Health Survey and meteorological data.

The Capital Regional Centers for Disease Control and Prevention will support the prevention and control of heatwave-related health damage through rapid information sharing of data from the emergency room–based heat-related illness surveillance system and cooperation with related organizations such as local governments, and plans to continuously provide the results of its analysis of the incidence in its jurisdictional area.

Declarations

Ethics Statement: Not applicable.

Funding Source: None.

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Conflict of Interest: The authors have no conflicts of interest to declare.

Author Contributions: Conceptualization: HKO, SRS,

SJN. Data curation: SJN. Formal analysis: SJN, SRS. Methodology: SJN, SRS. Visualization: SJN, SRS. Validation: SRS, HKO. Supervision: HKO. Writing − original draft: SJN. Writing − review & editing: SRS, HKO.

Supplementary Materials

Supplementary data are available online.

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2026 밀라노 동계올림픽·패럴림픽대회 군중모임행사 감염병 대비·대응

질병관리청 2026 밀라노 동계올림픽·패럴림픽 감염병대책반#

질병관리청

초 록

목적: 2026 밀라노 동계올림픽·패럴림픽대회는 대규모 국제 군중모임행사로 다양한 감염병 발생 위험이 존재한다. 본 보고서는 대한민국 선수단 보호를 위해 질병관리청이 구축한 감염병 대비·대응 체계와 운영 사례를 정리하고 향후 국제행사 대응 정책 수립에 기초자료를 제공하고자 한다.

방법: 대회 개최 전 관계부처 협력체계를 구축하고 감염병 대비·대응 계획을 수립하였다. 또한 감염병대책반을 구성하여 상황점검회의, 감염병 감시, 위험평가 및 상황관리 활동을 수행하였다. 대회 기간 중 발생한 감염병에 대해 상황보고와 대응 활동 내용을 정리하였다.

결과: 질병관리청은 관계부처와 협력체계를 구축하고, 대한체육회, 대한장애인체육회 등 현지파견 지원인력 간 연락망을 마련하였다. 더불어 감염병위기관리국장을 반장으로 1개 반 5개 팀으로 감염병대책반을 구성하여 감염병 감시, 위험평가, 위험소통, 상황관리 및 사후평가 기능을 수행하였다. 대회 기간 중에는 감염병 발생 상황을 모니터링하고 상황보고를 통해 신속 대응체계를 유지하였다. 2차례에 걸친 상황점검회의를 통해 분야별 대응현황을 공유하고 협력체계를 지속적으로 유지하였다. 또한 종료회의 및 사후평가를 통하여 그간 대응기구의 역할을 점검하고 투입한 자원의 내용을 정리하였다.

결론: 본 대응체계는 국제 군중모임행사에서 국가 차원의 감염병 대비 및 대응의 발전 모델을 마련하기 위한 기반으로 활용될 수 있으며, 향후 유사 국제행사 대응체계 구축에 정책적 근거를 제공할 수 있다.

주요 검색어: 밀라노 동계올림픽; 군중모임행사; 감염병 관리; 위험평가

서 론

군중모임(mass gathering)은 일반적으로 특정 목적을 위해 특정 장소에 많은 사람들이 모이는 것을 말하며, 그 규모가 해당 지역의 보건시스템이나 자원에 큰 부담을 줄 수 있는 경우를 포함하기도 한다. 이러한 군중모임행사는 전세계적으로 종교·문화·스포츠 등 다양한 형태로 개최되며, 사회적·문화적 가치를 제공하는 동시에 감염병 전파를 증폭시키는 환경으

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핵심요약

① 이전에 알려진 내용은?

국제 스포츠 행사와 같은 대규모 군중모임은 감염병 전파 위험 증가와 국가 간 확산 가능성이 높아 공중보건 대비체계 구축이 필요하다.

② 새로이 알게 된 내용은?

질병관리청은 관계부처 협력체계 구축, 감염병대책반 운영, 감시 및 위험평가 수행 등을 통해 국제 군중모임행사 대응체계를 구축하고 실제 상황에 적용하였다.

③ 시사점은?

국가 차원의 통합 대응체계 구축은 국제행사에서 감염병 위험 최소화를 위해 중요하며, 향후 다양한 형태의 국제 군중모임행사를 위한 참고자료로 활용 가능하다.

로 작용하기도 한다. 군중모임행사는 병원체 특성, 군중 밀집도, 참가자의 면역수준 및 보건체계 대응역량이 복합적으로 작용하여 감염병 발생 위험을 형성한다[1].

특히 국제행사와 같은 군중모임은 다양한 국가에서 참가자가 유입됨에 따라 각 지역의 고유 감염병이 함께 유입될 가능성이 존재하며, 행사장 내 밀집 환경과 공동 숙박, 식사, 이동 등의 특성은 병원체의 전파를 촉진하는 요인으로 작용한다. 또한, 행사 종료 이후 참가자들이 각자의 지역으로 이동함에 따라 감염병이 지역사회 및 국가 간으로 확산될 수 있어, 군중모임행사는 광범위한 공중보건 영향을 미칠 수 있다[2].

국외 군중모임행사의 경우 2024년에 발간된 유럽질병통제예방센터(European Centre for Disease Prevention and Control, ECDC) 보고서에 따르면 2014년 1월 1일부터 2024년 3월 31일까지의 기간동안 여러 유형의 발병 사례를 보고하였다. 특히 호흡기감염병이 가장 빈번하게 나타났다. 대표적으로 유럽축구선수권대회(Union of European Football Associations Euro 2020)에서는 경기장 내 관중 밀집과 국가 간 이동 증가로 인해 코로나바이러스감염증-19(코로나19) 확진자가 다수 발생하였다. 수인성 · 식품매개감염병 역시 반복적으로 보고되는 집단발생이다. 음악축제 및 대규모 야외행사에서는 노로바이러스 감염증 및 급성 위장관염 환자가 집단적으로 발생하였으며 국제 스포츠 행사 및 박람회에서도 살모넬라, 대장균 감염 등 식품매개감염병 사례가 발생한 것으로 나타났다. 국제 청소년 행사인 스카우트 잼버리에서는 2015년 행사 이후 수막구균 감염 환자 보고가 있었으며 2016년 유럽 지역 음악 축제에서는 홍역 환자가 다수 발생하여 지역사회로 확산된 사례가 확인되었다[3].

국내 군중모임행사의 감염병 집단발생 사례로는 2018년 평창동계올림픽의 노로바이러스 감염증, 2019년 광주세계수영선수권대회의 장독소성대장균 감염증, 2024년 강원 동계청소년올림픽대회에서는 노로바이러스 감염증의 사례가 보고되었다[4].

군중모임행사에서는 이와 같은 감염병 발생 가능성은 존재하지만, 적절한 사전 준비와 감시 · 대응체계 구축을 통해 위험을 효과적으로 관리할 수 있으며 체계적인 위험평가 및 예방접종 등의 관리를 통해 예방이 가능하다.

본 보고서에서 질병관리청이 구축한 감염병 대비 · 대응체계와 운영 사례를 정리하고 향후 국제행사 대응 정책 수립을 위한 기초자료를 제공하고자 한다.

2026년 밀라노 동계올림픽 · 패럴림픽대회는 약 90개국 선수단이 참가하는 대규모 국제 행사로 우리나라 선수단의 감염병 예방과 안전 확보를 위한 사전 대비체계 구축이 필요하였다.

군중모임행사 감염병 대비 · 대응 표준운영절차의 대응지원 주체를 살펴보면, 국내에서 개최되는 단일 지역 행사인 경우 행사가 개최되는 지역을 관할하는 권역별질병대응센터에서 감염병 대응을 지원하고, 2개 이상의 권역에서 대응 필요한 전국 규모 행사와 해외에서 개최하는 군중모임행사 참여에 따른 감염병 대응 지원은 본청에서 주관한다[5].

이에 밀라노 동계올림픽 · 패럴림픽대회는 국제 대회에 우

리나라 선수단이 참여하는 행사로서 질병관리청 위기관리총괄과는 관계부처 협력 체계를 기반으로 청 내 관계부서와 함께 감염병 대비 · 대응 계획을 수립하고 감염병대책반을 운영하였다.

본 보고서는 해당 대응체계 구축 과정과 운영 결과를 기술하고 향후 정책적 시사점을 도출하고자 한다.

방 법

군중모임행사 대비 · 대응의 목적은 행사 전 · 중 · 후 전 과정에서 참가 선수 및 선수단을 감염병의 위험으로부터 보호하고, 대회 종료 후 귀국 이후 잠복기까지 감염병 발생을 예방 · 관리하는 데 있다.

질병관리청은 감염병대책반을 구성하고, 감염병 대비 · 대응 계획을 수립하여, 행사의 감염 위험평가, 감염병 발생 감시 및 상황발생시의 대응절차를 마련하고, 행사 기간 중 상황점검회의를 통해 진행사항을 점검하였다(그림 1).

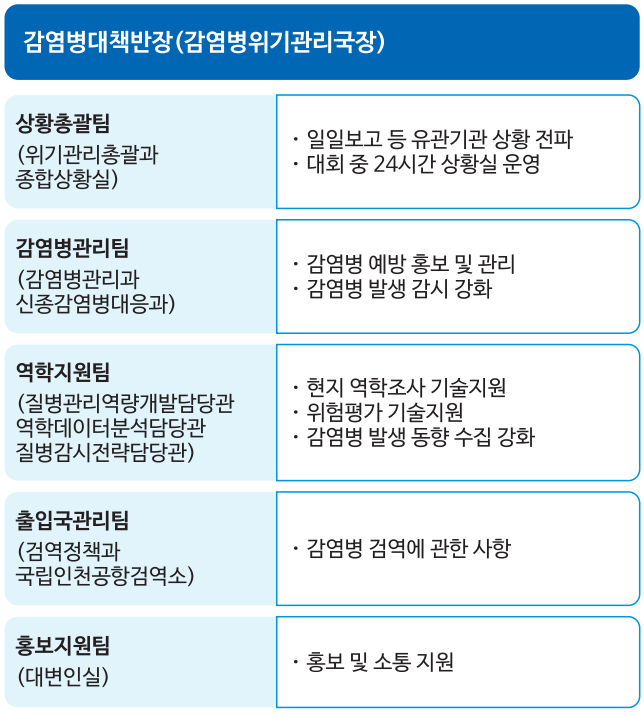

그림 1. 질병관리청 2026 밀라노 동계올림픽·패럴림픽대회 감염병대책반

감염병대책반은 감염병 감시를 위해 세계보건기구(World Health Organization, WHO)의 웹 기반 감염병 감시 시스템인 Epidemic Intelligence from Open Sources (EIOS) 및 해외 감염병 정보 사이트 등을 상시 모니터링하였다. 또한, 감염병 발생 상황에 대한 위험평가를 수행하였는데 이는 국내 감염병 위험평가 체계와 동일하게 발생가능성과 영향력을 평가하고 이를 종합하여 최종 위험도를 산출하는 방법으로 이 결과를 위험도 매트릭스에 적용하여 종합위험도를 산출한다.

결 과

1. 군중모임행사 감염병 예방관련 질병관리청 주요 역할

1) 감염병 감시, 위험평가, 검역

감염병대책반 운영에 따라 종합상황실과 질병감시전략담당관은 올림픽 · 패럴림픽 기간 동안 발생 또는 유입 등 감염병 대비 · 대응을 위한 사건기반감시(event-based surveillance) 체계를 운영하였다. 또한 질병감시전략담당관은 대회 3개월 전 ECDC, 이탈리아 국립보건원 보고서 등을 근거로 개최지역 중심 감염병 발생 동향을 분석하였으며, 이 자료를 바탕으로 역학데이터분석담당관에서 위험평가를 실시하였다. 대회가 개최되는 해당 지역과 계절적 특성에 맞게 주요 감염병을 지정하여 감염병 발생현황 및 위험평가를 실시하였다. 해당 감염병에는 호흡기감염병, 수인성 · 식품매개감염병, 예방접종 대상 감염병 및 매개체 감염병 등을 주요 감시 대상으로 설정하였다. 또한 국립인천공항검역소에서는 해외감염병의 국내유입 가능성에 따라 유입 차단 및 확산 방지, 1차 스크리닝을 위한 검역대비를 계획하였다.

2) 상황관리 및 위험소통

대회 전 문화체육관광부(문체부)가 주최하는 관계부처 협력회의에 참석하여 감염병 대응체계 구축 운영 계획에 관한 내용

을 공유하였다. 또한 대회 기간 중 해당 지역에서 보고되는 감염병 발생 사례에 대해 청 내에 공유하고, 조치사항을 선수단에 전달하는 등 상황 관리를 수행하였다. 이번 대회 초기에 노로바이러스 감염증 및 코로나19 감염 사례 발생이 보고되었으며, 대책반은 선수단 의무팀을 통해 감염 예방수칙을 재강조하고 의심증상자 모니터링을 강화하였다. 또한 우리 선수단 내 환자 발생 여부를 지속적으로 확인하고 상황을 관리하였다.

3) 상황점검회의 운영

감염병대책반은 2회의 상황점검회의 및 1회의 상황종료회의를 개최하여 대회 관련 상황을 공유하고, 대회 지역 최신 감염병 정보를 공유하였다.

다음으로 시기별 대비 · 대응 활동에 대해 시기별로 정리해보고자 한다.

2. 행사 전·중·후 세부활동

1) 행사 전

(1) 협력체계 구축·유지

2026 밀라노 동계올림픽 · 패럴림픽대회의 개최일인 2월 6일 기준으로 3개월 전인 2025년 11월 6일에 문체부 주재로 회의가 진행되었다. 대회 준비상황 및 지원방안을 논의하는 자리였으며 관계기관인 외교통상부, 통일부, 대테러센터, 대한체육회, 대한장애인체육회와 질병관리청이 참석하였다(그림 2). 문체부에서는 대회 준비상황 및 지원방안을 공유하고, 관계기관에서는 주요 활동 계획 등을 설명하였다. 질병관리청은 개최 지역의 감염병 현황과 해당 기간에 유행 가능한 감염병 등의 내용을 공유하였다. 이후 2026년 1월 7일에 2차 서면회의에는 12월에 진행된 위험평가 내용을 공유하였다.

(2) 위험평가

질병감시전략담당관은 호흡기감염병, 수인성 · 식품매개감염병 등 이탈리아 내 주요 감염병 발생 현황을 분석하여 역학데이터분석담당관의 위험평가 수행을 지원하였으며, 역학데이터분석담당관에서는 해당 발생 현황 자료를 바탕으로 위험평가를 수행하여, 그 결과를 대회 대비 전략 수립에 활용하였다.

역학데이터분석담당관에서는 국내 선수단 및 자국민의 감염병 예방을 위한 대비 · 대응 계획 수립 지원을 위해 대회 3

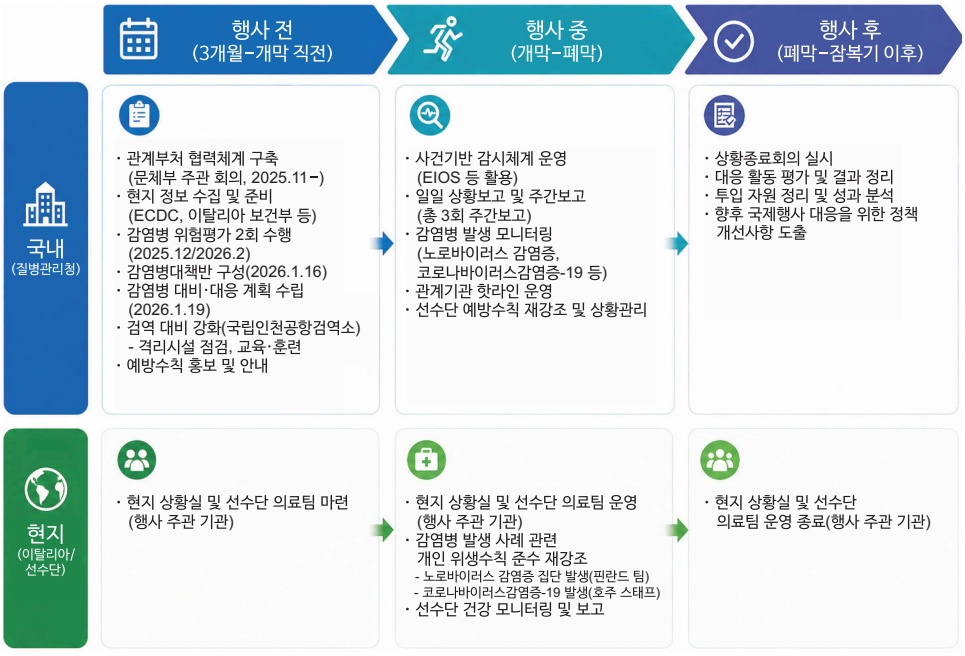

그림 2. 질병관리청 2026 밀라노 동계올림픽·패럴림픽대회 감염병대책반 기간별 주요 활동

ECDC=European Centre for Disease Prevention and Control; EIOS=Epidemic Intelligence from Open Sources.

개월 전인 2025년 12월과 대회 개막 직전인 2026년 2월, 두 차례 위험평가를 실시하였다. 평가 대상은 사건기반감시 대상에 맞추어 수인성 · 식품매개감염병, 호흡기감염병, 예방접종 대상 감염병, 매개체감염병, 성매개감염병, 바이러스성 간염의 6개 감염병군으로 선정하였다. 평가 방법은 국내 감염병 위험평가 체계와 동일하게 발생가능성(probability)과 영향력(impact)을 평가하고 이를 종합하여 최종 위험도를 산출하였다. 발생가능성은 행사 개최지의 감염병 발생 현황을 바탕으로 우리나라 국민의 현지 감염을 통한 국내 유입 가능성, 국내 인구의 노출 가능성, 인구 감수성 수준 및 지역사회 전파 가능성을 평가하며, 영향력은 질병의 중증도, 사회적 영향 수준 및 국내 대응역량 수준을 평가하였다. 이후 발생가능성과 영향력의 평가 결과를 위험도 매트릭스에 적용하여 종합위험도를 산출하고, 그 결과를 바탕으로 감시 강화, 예방조치, 위험소통 및 대응 계획 수립 등 필요한 방역대책을 마련하였다[6].

두 차례 위험평가는 약 2개월 간격으로 수행되었으며, 평가 결과 감염병 유형별 종합위험도는 변동 없이 동일하게 유지되었다. 구체적으로, 호흡기감염병은 '중간', 수인성 · 식품매개감염병, 예방접종 대상 감염병 및 성매개감염병은 '낮음', 매개체감염병과 바이러스성 간염은 '매우 낮음'으로 평가되었다.

호흡기감염병의 경우 동계 유행 특성, 대규모 인구 이동 및 밀집 환경 등을 발생 가능성에 반영하여 평가하였다. 특히 홍역의 경우 국내의 홍역 2차 예방접종률은 95% 이상으로 높으나[7], 전세계 지속 발생 추세와 현지의 낮은 예방접종률을 고려할 때[8] 선수단 및 방문객에서 홍역 미접종자를 대상으로 예방접종 권고가 필요한 것으로 판단되었다.

수인성 · 식품매개감염병은 최근 이탈리아의 환자 발생 추세와 전파 경로, 동계 유행 특성 등을 고려하였다. 그 중 노로바이러스 감염증의 경우 겨울철에 유행하며 2018년 평창 동계올림픽 등 대규모 군중모임행사에 유행이 발생한 바가 있어 주의가 필요할 것으로 보았다[9]. 매개체감염병은 매개체 활동 시기, 바이러스성 간염은 전파 경로 등을 고려하여 평가하였다.

(3) 검역 대비

국립인천공항검역소에서는 해외감염병의 국내유입 가능성에 따라 유입 차단 및 확산 방지를 위한 검역을 대비하였다. 대회 전에는 사이니지를 통해 올림픽 카드뉴스 영상을 송출하였고, 소내 자체 감염병 대응 교육을 실시하여 역량 강화를 도모하였다. 또한 입국자 중 감염병 의심 유증상자 발생 시 신속한 대응을 위해 이동동선 점검 및 집단발생 대비 격리관찰실 환경을 구축하였다. 또한 올림픽 및 패럴림픽 기간 동안 이탈리아발 입국자 대상 검역 강화를 위해 게이트검역을 실시하였다. 이는 이탈리아 직항기 입항 시, 역학조사관이나 공중보건의를 현장에 배치하여 유증상자 발생 시 신속 대응하는 방법으로 계획하였다.

(4) 감염병대책반 구성 및 운영

질병관리청은 감염병위기관리국장을 반장으로 하는 감염병대책반을 2026년 1월 16일 구성하였다(그림 1). 대책반은 상황총괄팀, 감염병관리팀, 역학지원팀, 출입국관리팀, 홍보지원팀으로 구분한 5개 팀으로 구성하여 관련된 기능을 수행하도록 조직되었으며, 대회 전 상황점검회의를 개최하여 대응 준비 상황을 점검하였다.

(5) 감염병 대비·대응 계획 수립

대한민국 선수단의 출국 전, 체류 기간 및 귀국 후 전 과정에 대한 감염병 대비 · 대응 계획을 2026년 1월 19일에 수립하였다. 계획에는 감염병 위험평가 및 해당지역 감염병 감시, 대책반 구성 · 운영 및 팀별 역할, 주요 감염병별 예방수칙 등 예방 · 관리 부분이 포함되었다.

(6) 예방수칙 안내 및 홍보

대비 · 대응 계획을 마련한 이후 호흡기감염병, 수인성 · 식품매개감염병 등 주요 감염병에 대해 문체부를 통해 예방수칙을 안내하였다. 호흡기감염병 유행 대비 홍역 예방접종을

권고하는 내용으로, 참가단과 선수단에게 안내하고 예방수칙을 준수할 수 있도록 당부하였다. 이어 1월 29일에는 올림픽에 참가하는 우리 선수단과 방문자들에게 주요 감염병 예방을 위한 권고사항과 개인 위생 수칙을 안내하는 보도자료를 배포하였다.

2) 행사 중

(1) 협력체계 유지

밀라노 올림픽 대회 개최를 1주일 앞둔 1월 29일에는 관계기관 및 현지 상황실 지원인력 간 핫라인을 운영하여 감염병 상황 발생 시 신속한 정보 공유가 가능하도록 하였다. 이러한 협력체계는 대회 기간 동안 지속적으로 유지되었다. 2월 22일 올림픽 대회가 종료된 이후 동계 패럴림픽 개최 1주일 전인 2월 28일부터 동계 패럴림픽 상황반을 운영하였다. 대한장애인체육회를 중심으로 현지 상황실 비상연락망을 구축하였고, 질병관리청을 포함하여 유관기관 간 협조체계를 유지하였다. 이를 통해 현지 인력과의 연락체계 유지를 지속하였고, 대한체육회 및 대한장애인체육회 현지의 일일상황보고를 공유받아 감염병 사건발생에 기반한 감시 등 감염병 발생상황 모니터링을 진행하였다.

2026년 2월 4일부터는 대테러센터 주재로 현지 사건과 안전 상황 등의 정보를 공유하는 정부합동 신속대응팀이 꾸려졌고 올림픽 기간 동안 관련 상황을 공유받았다.

또한 동계올림픽대회 폐회 이후 패럴림픽을 대비하기 위해 현지 감염병 감시 동향으로 이탈리아의 최신 호흡기감염병 발생현황을 당시 최신날짜인 2026년 8주 기준으로 공유하여 호흡기 감염병 발생 현황을 참고하여 주의할 수 있도록 참가단과 선수단에게 안내 및 당부를 요청하였다.

(2) 감염병 감시

종합상황실과 질병감시전략담당관은 대회기간 동안 사건기반감시체계를 활용하여 개최국 이탈리아의 감염병 발생 동향을 정기적으로 모니터링하였다.

질병감시전략담당관은 감염병 위험평가 결과에서 종합위험도 '중간'으로 평가된 호흡기 감염병 발생 현황을 이탈리아 국립보건원 등 공식 자료를 기반으로 주간 감염병 발생 동향을 분석하였다. 급성호흡기감염증 발생은 감소세를 유지하였고 감염병별로는 차이를 보였다. 인플루엔자 및 코로나19는 전반적으로 낮은 수준을 유지한 반면, 호흡기세포융합바이러스(Respiratory Syncytial Virus) 감염증은 올림픽 대회 기간에 증가 양상을 보였으나 패럴림픽대회 이전에 감소로 전환됐다.

종합상황실은 개최지인 이탈리아를 포함, 유럽 지역 중심으로 군중모임 사건기반감시를 한층 강화하였다. WHO의 웹기반 감염병 감시 시스템인 EIOS 및 해외 감염병 정보 사이트 등을 상시 모니터링하였으며, 주요 감염병 발생 동향 등 실시간 수집한 감시정보를 일일단위로 대책반에 공유 및 일일상황보고를 진행하였다. EIOS는 공개 출처 기반 감염병 정보를 실시간 수집 · 분석하여 잠재적 위험 신호를 조기에 탐지하는 사건기반감시 체계로, 수집된 정보는 위험도 평가 및 대응 필요성 검토를 위한 기초자료로 활용되었다. 감시 대상 감염병은 대규모 국제행사와 같이 다중 인파가 밀집되는 환경에서 전파 위험이 증가하고 유행 가능성이 높은 질환군을 중심으로 설정하였다. 이는 호흡기감염병, 수인성 · 식품매개감염병, 매개체감염병, 예방접종 대상 감염병, 성매개감염병 및 바이러스성 간염 등을 포함한다. 중점 감시 기간은 개회식 전인 2026년 1월 30일부터 폐회식이 개최된 2026년 3월 15일까지 지속했으며, 감시 기간 내 노로바이러스 감염증 감염 사례 2건과 코로나19 감염 사례 1건을 확인하였다. 구체적으로 노로바이러스 감염증은 2026년 2월 4일 보고된 핀란드 여자 아이스하키 선수단 환자 4명 발생 건과 2월 7일 보고된 스위스 여자 아이스하키 선수단 환자 1명 발생 건이며, 코로나19는 2026년 2월 4일 보고된 호주 대표팀 지원 인력 환자 2명 발생 건으로, 해당 사례들은 모두 EIOS 기반 감시체계를 통해 조기에 인지하고 보고 · 공유하였다.

종합상황실과 질병감시전략담당관은 개최국 감염병 발생 동향에 대한 지속적인 감시와 분석을 통해 위험평가 및 상황 관리를 지원하였으며, 국제 군중모임행사 대응체계 운영에 필요한 근거자료를 제공하였다.

또한 국립인천공항검역소에서는 올림픽이 시작된 기간부터 매주 주기적으로 입항하는 이탈리아 밀라노, 로마발 직항기 4대에 대해 검역단계에서 추가 증상 여부 재확인 및 일부 입항 항공기의 경우 게이트 앞에서 발열감시카메라를 운영하는 등 특이사항 발생에 대한 강화된 모니터링을 실시하고 유증상자 발생을 대비하여 역학조사관과 공중보건의사를 검역현장에 대기하도록 하였다.

(3) 감염병 발생 상황보고

밀라노 동계올림픽 개막 전 해외 선수단과 관계자에게서 노로바이러스 감염증 및 코로나19 감염 관련 보고가 있었다.

노로바이러스 감염증은 2월 3일에 핀란드 아이스하키 대표팀 및 관계자에서 발생하였고, 이에 13명을 격리조치하였다[10]. 이에 핀란드와 캐나다간 아이스하키 경기는 당초 2월 5일에서 일주일 뒤인 2월 12일로 연기하여 진행하였다. 코로나19는 호주 선수단의 스태프 2명이 각각 1월 28일, 31일에 증상이 발생한 후 양성 판정을 받았고[11] 올림픽 조직위원회에서는 감염환자 및 노출자를 포함하여 격리조치하고 추가로 식음료 관리, 개인위생 등 감염예방 조치를 시행하였다.

사건기반감시체계를 기반으로 한 중점 감시 기간은 2026년 1월 30일부터 운영되었다. 다만 코로나19 사례는 올림픽 개막 직전인 2026년 2월 4일 EIOS 및 언론을 통해 최초 인지되었으며, 이후 확인 결과 해당 사례 중 1명은 2026년 1월 28부터 증상이 발생한 것으로 확인되었다. 즉, 증상 발생일은 중점 감시 기간 이전이었으나, 해당 사건은 감시 기간 중 사건기반감시체계를 통해 인지 및 보고되었다.

질병관리청은 비상연락망을 통하여 문체부에 확인 결과 한국 선수단 중 감염병 환자 및 노출자가 없으며 그 외 건강문제 관련 보고가 없음을 확인하였다. 당시 밀라노 선수촌에서 특정팀에 국한된 해당 감염병이 발생한 상황이나 선수촌 생활을 통한 우리 선수단의 전파 가능성이 있어 주의가 필요하다는 평가를 하고 상황을 예의주시하였다.

감염병대책반은 현지 선수단 의무팀을 통해 노로바이러스 감염증 및 코로나19가 발생한 상황 전파, 30초 이상 손씻기, 충분히 익힌 음식 섭취 및 안전한 물 음용하기, 호흡기 증상 있을 시 마스크 착용, 실내 환기 등 수인성 및 호흡기감염병에 대한 예방수칙 준수를 재강조 하도록 안내하였다. 또한 선수촌 내 타 선수와의 접촉을 최소화하고, 선수단 내 의심증상자가 있을 시 모니터링 강조하도록 하였다.

노로바이러스 감염증 감염이 인지된 2월 6일 당일, 이러한 상황을 신속하게 청 내 보고하고 감염병 발생상황을 지속 모니터링하였다. 또한 추가환자 발생 시 주의 당부용 홍보 보도자료도 배포할 예정이었으나 이후 해당 노로바이러스 감염증 및 코로나19 관련 추가 전파는 없이 안전하게 상황이 종료되었다. 이후 밀라노 올림픽 · 패럴림픽 폐막식인 3월 15일까지 공유받은 현지의 일일상황보고 감시 결과 감염병 관련된 특이사항은 없었다.

(4) 주간상황보고

올림픽이 시작된 후 감염병대책반은 주간상황보고를 실시하였다. 매주 목요일 오전 10시를 기준으로 하되 상황에 따라 탄력적으로 운영하였다. 종합상황실에서는 이탈리아 중심으로 강화된 사건기반감시를 실시한 내용을 보고하였고, 질병감시전략담당관에서는 호흡기감염병 등 주요 발생 동향을 보고하였으며, 위기관리총괄과에서는 대한체육회 및 대한장애인체육회에서의 일일상황보고를 공유받아 감염병 관련 상황을 모니터링하고, 대책반 조치사항 등을 보고 및 공유하였다. 이는 2월 12일과 19일, 3월 12일 총 3회 진행되었다.

3) 행사 후

밀라노 현지에서 3월 15일 패럴림픽대회 폐회 후, 감염병 대책반은 그간의 활동사항 정리 및 운영 평가를 하기 위해 다음날 상황종료회의를 진행하였다. 대회 관련하여 그간의 경과를 공유하고 행사가 종료되었음을 알렸다. 또한 대회는 폐막하였으나 현지에 머물다 입국하는 경우를 고려하여 최대 14일 간 이탈리아발 입국자에 대한 후속 모니터링을 실시하여 유증상자 발생상황에 대비하였다.

논 의

본 사례는 국제 군중모임행사에서 국가 차원의 감염병 대비 및 대응체계를 구축하고 실제 상황에 적용한 사례로서 의미가 있다. 관계부처 협력체계를 구축하고 감염병대책반을 조직하여 감염병 위험평가와 감시를 수행하고, 위험소통 및 상황관리 기능을 통합적으로 운영함으로써 우리 선수단의 감염예방에 기여한 것으로 평가할 수 있다. 이러한 일련의 과정을 위해 감염병 대비 · 대응 인력은 대책반 총 39명이 투입되었고, 준비 및 활동기간은 4개월이었으며, 질병감시전략담당관, 역학데이터분석담당관, 종합상황실 등 9개 부서가 협조하였다. 또한 동계올림픽 기간 동안 이탈리아에서 입국한 선수, 선수단 관계자, 일반 승객, 승무원은 총 20,342명이었고 올림픽 기간에는 14,548명, 패럴림픽 기간에는 5,794명이 입국하였다.

총 20,342명의 입국자 중 20,342명 전체에 대해 스크리닝을 실시 하였으며 유증상자는 1명으로, 패럴림픽 기간 동안 발생했으나 역학적 연관성이 없이 콧물만 있는 단순 유증상자로 검사 대상에 해당되지 않았다.

2026 밀라노 동계올림픽 · 패럴림픽대회는 군중모임행사 표준운영절차[5]에 기반하여 행사의 각 시기별, 분야별 대비 · 대응 활동을 전개하였다. 다만, 대회 기간 중 노로바이러스 감염증 및 코로나19 사례에 대해 언론보도, 사건기반감시체계 등 다양한 경로를 통해 정보를 수집하였으나, 현지 상황에 대한 상세 정보와 공식 확인 자료를 신속하게 확보하는 데에는 일부 제한이 있었다. 또한 관계기관 등 협조체계를 구축하였더라도 실시간 현지 상황실과의 논의가 원활하지 않은 점 등은 아쉬운 점이었다. 향후 유사 국외 군중모임행사의 감염병 대비 · 대응을 위해 현지 파견 인력이 없이 운영되는 경우 보완이 필요하다. 관계기관 협조체계를 구축하는 단계에서 현지 상황실 파견 예정인 인력들과의 분야간 실제 정보공유 대상과 절차, 행사지역 시차를 감안한 시점 등에 대한 충분한 사전 논의를 통해 협조체계가 마련되어야 한다.

2026 밀라노 동계올림픽 · 패럴림픽대회 관련한 감염병 대비 · 대응 경험을 살펴본 바 다양한 군중모임행사 사례를 축적하여 향후 국제 스포츠 행사 및 대규모 군중모임 대응 시 해당 사례들을 기반으로 표준화된 감염병 대응체계를 발전시킬 필요가 있다.

Declarations

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Policy Note

Infectious Disease Preparedness and Response for Mass Gatherings at Milano Cortina 2026 Olympic and Paralympic Winter Games

KDCA Infectious Disease Countermeasure Task Force for the Milano Cortina 2026 Olympic and Paralympic Winter Games[#]

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ABSTRACT

Objectives: The Milano Cortina 2026 Olympic and Paralympic Winter Games were large-scale international mass gathering events associated with an elevated risk of infectious disease transmission and potential cross-border spread. This report describes the infectious disease preparedness and response system established by the Korea Disease Control and Prevention Agency (KDCA) to protect the Korean delegation and to generate evidence to inform policy development for future international mass gathering events.

Methods: A structured preparedness and response framework was implemented before the event. This included the establishment of an interagency coordination mechanism and the development of a infectious disease preparedness and response plan. An infectious disease task force was constituted to conduct situation assessment meetings, epidemiological surveillance, risk assessment, and incident management. During the event, suspected and confirmed infectious disease cases were actively monitored, and all response activities were systematically documented for post-event evaluation.

Results: The KDCA established a coordinated multi-sectoral response network involving relevant national ministries and supporting organizations, including the Korean Sport & Olympic Committee and the Korea Paralympic Committee. An infectious disease task force comprising a central headquarters unit and five functional teams was deployed for epidemiological surveillance, risk assessment, risk communication, situation management, and post-event evaluation. Continuous real-time monitoring and structured situation reporting enabled timely detection and response to potential public health threats during the event period. Two formal situation assessment meetings were conducted to ensure interagency coordination and operational alignment. Following the event, a structured post-event evaluation was conducted to assess response effectiveness, operational performance, and resource utilization.

Conclusions: The KDCA response framework demonstrated operational feasibility for infectious disease risks during international mass gatherings. This system may serve as a foundational model for the development of a standardized national preparedness and response framework for future international events. It also provides policy-relevant evidence to support the institutionalization of coordinated public health emergency systems for future similar events.

Key words: Milano Cortina 2026 Winter Games; Mass gatherings; Communicable disease control; Risk assessment

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Key messages

① What is known previously?

International mass gatherings, including global sporting events, increase the risk of infectious disease transmission and cross-border dissemination, necessitating robust and public health preparedness systems.

② What new information is presented?

The Korea Disease Control and Prevention Agency implemented an integrated preparedness and response system through interagency collaboration, deployment of a dedicated task force, and real-time surveillance and risk assessment.

③ What are implications?

A coordinated national response architecture is essential to minimize infectious disease risks during international events and can serve as a transferable model for future mass gathering preparedness and response strategies.

Introduction

A mass gathering generally refers to many people gathering at a specific location for a specific purpose, and may also include cases where its scale can place a significant burden on the local health system or resources. These mass gathering events are held worldwide in various forms, such as religious, cultural, and sports events, and while they provide social and cultural value, they also serve as environments that amplify the transmission of infectious diseases. The risk of infectious disease outbreaks at mass gathering events is shaped by the combined effects of pathogen characteristics, crowd density, participants' immunity levels, and public health system response capacity [1].

In particular, mass gatherings such as international events have the potential for the introduction of endemic infectious diseases from each region due to the influx of participants from various countries, and characteristics such as crowded environments within the event venue, shared accommodation, meals, and transportation act as factors that facilitate pathogen transmission. Furthermore, as participants travel to their respective regions after an event, infectious diseases can spread within communities and between countries; therefore, mass gathering events can have extensive public health impacts [2].

Regarding international mass gathering events, a 2024 report from the European Centre for Disease Prevention and Control (ECDC) reported various types of outbreak cases during the period from January 1, 2014, to March 31, 2024. In particular, respiratory infectious diseases occurred most frequently. For example, at the Union of European Football Associations European Championship (UEFA Euro 2020), a large number of confirmed coronavirus disease 2019 (COVID-19) cases occurred due to spectator crowding in stadiums and increased international travel. Outbreaks of waterborne and foodborne infectious diseases have also been repeatedly reported. Outbreaks of norovirus infection and acute gastroenteritis have occurred at music festivals and large-scale outdoor events, and cases of foodborne infectious diseases such as Salmonella and *Escherichia coli* infections were found to have occurred at international sporting events and expositions. Cases of meningococcal infection were reported following the 2015 Scout Jamboree, an international youth event, and numerous measles cases occurred at a European music festival in 2016, with subsequent community transmission confirmed [3].

In the Republic of Korea (ROK), reported cases of infectious disease outbreaks at mass gathering events include norovirus infection at the 2018 PyeongChang Winter Olympic Games, enterotoxigenic *E. coli* infection at the 2019 Gwangju

World Aquatics Championships, and norovirus infection at the 2024 Gangwon Winter Youth Olympic Games [4].

The potential for such infectious disease outbreaks exists at mass gathering events, but the risk can be effectively managed through appropriate advance preparation and the establishment of a surveillance and response system; and prevention is possible through systematic risk assessment, vaccination, and other management measures.

This report aims to summarize the infectious disease preparedness and response system established by the Korea Disease Control and Prevention Agency (KDCA) and its operational cases, and to provide baseline data for the formulation of future response policies for international events.

As a large-scale international event with athletic delegations from approximately 90 participating countries, the Milano Cortina 2026 Olympic and Paralympic Winter Games required the establishment of an advance preparedness system for infectious disease prevention and the safety of the South Korean athletic delegation.

Examining the response support entities of the Standard Operating Procedure for Infectious Disease Preparedness and Response at Mass Gathering Events, for a single-region event held domestically, the Regional Centers for Disease Control and Prevention with jurisdiction over the region where the event is held supports the infectious disease response. Infectious disease response support for nationwide-scale events requiring a response in two or more regions and for participation in mass gathering events held overseas is managed by the headquarters [5].

Accordingly, as the Milano Cortina 2026 Olympic and Paralympic Winter Games are an international event where the South Korean athletic delegation participates, the Division of Emergency Preparedness and Response of the KDCA established an infectious disease preparedness and response plan and operated an infectious disease response team based on a cooperative framework with relevant ministries and in collaboration with relevant departments within the Agency.

This report describes the establishment process and operational results of the relevant response system and aims to derive future policy implications.

Methods

The purpose of preparedness and response for mass gathering events is to protect participating athletes and delegations from the risk of infectious disease throughout the process—before, during, and after the event—and to prevent and manage infectious disease outbreaks after the competition concludes, following their return to their home countries, and until the end of the incubation period.

The KDCA formed an Infectious Disease Response Team, established an infectious disease preparedness and response plan, conducted an infection risk assessment for the event, established surveillance of infectious disease outbreaks and response procedures in the event of an outbreak, and monitored progress through situation monitoring meetings during the event period (Figure 1).

The Infectious Disease Response Team routinely monitored the World Health Organization (WHO)'s web-based infectious disease surveillance system, Epidemic Intelligence from Open Sources (EIOS), and overseas infectious disease information websites for infectious disease surveillance. Additionally, a risk assessment of infectious disease outbreaks was performed, which, similar to the domestic infectious

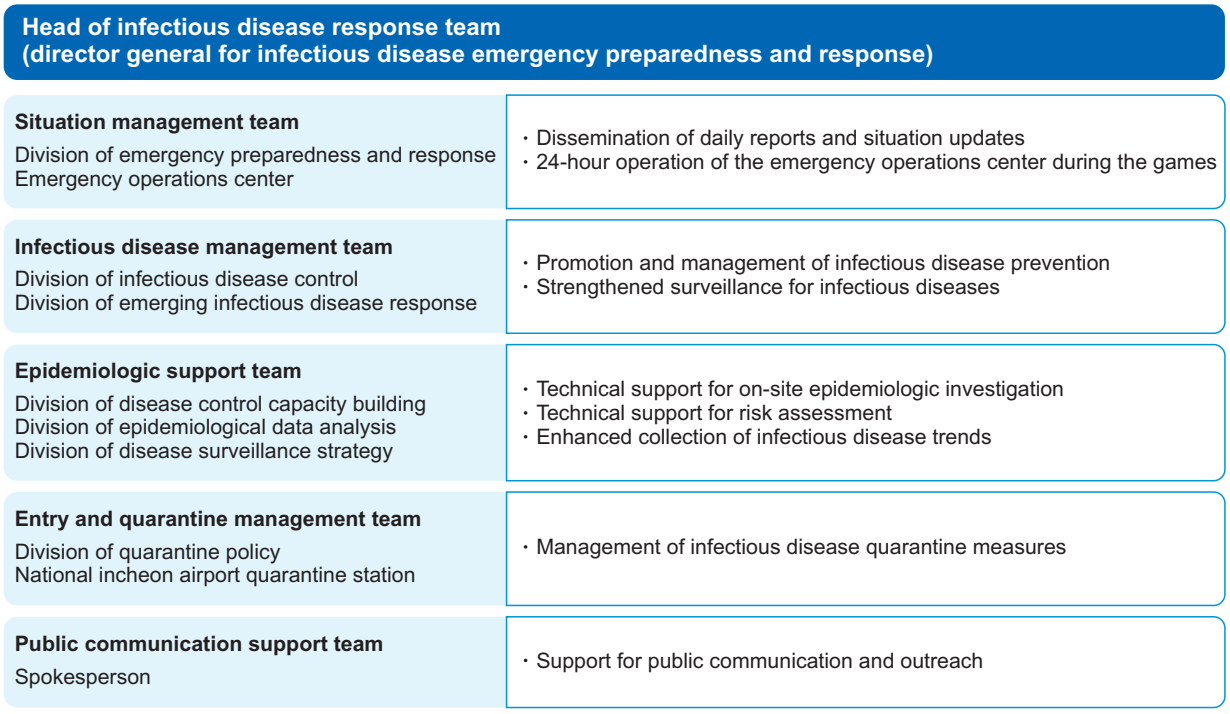

Figure 1. Korea Disease Control and Prevention Agency Infectious Disease Countermeasure Task Force for the Milano Cortina 2026 Olympic and Paralympic Winter Games

disease risk assessment system, assesses probability and impact and synthesizes them to calculate the final risk level and applies these results to a risk matrix to calculate the overall risk level.

Results

1. Key Roles of the KDCA Related to Infectious Disease Prevention for Mass Gathering Events

1) Infectious disease surveillance, risk assessment, and quarantine

In accordance with the operation of the Infectious Disease Response Team, the Emergency Operations Center and the Division of Disease Surveillance Strategy operated an event-based surveillance system during the Olympic and Paralympic Games for Infectious Disease Preparedness and Response, including the occurrence or importation of infectious diseases. Additionally, 3 months prior to the event, Division of Disease Surveillance Strategy analyzed infectious disease occurrence trends centered on the host region based on reports from the ECDC, the Italian National Institute of Health, and others. Based on this data, the Division of Epidemiological Data Analysis conducted a risk assessment. Major infectious diseases were designated according to the regional and seasonal characteristics of the event location, and their occurrence status was assessed, and a risk assessment was conducted. Six categories of infectious diseases were designated as the primary surveillance targets: waterborne and foodborne infectious diseases, respiratory infectious diseases, vaccine-preventable diseases, vector-borne diseases, sexually transmitted infections, and viral hepatitis. Furthermore, the National Incheon Airport Quarantine Station planned quarantine preparedness for the prevention of entry and prevention of spread and for primary screening, in response to the potential for the domestic introduction of overseas infectious diseases.

2) Situation management and risk communication

An inter-agency coordination meeting hosted by the Ministry of Culture, Sports and Tourism prior to the event was attended, and information on the plan for the establishment and operation of the infectious disease response system was shared. Furthermore, situation management was conducted, including sharing information within the Agency on infectious disease cases reported in the area during the competition period and communicating response measures to the athletic delegation. Early in the event, cases of norovirus infection and COVID-19 were reported, and the response team, through the athletes' medical team, re-emphasized the infection prevention guidelines and strengthened monitoring of individuals with suspected symptoms. Additionally, we continuously monitored for the occurrence of cases within our delegation and managed the situation.

3) Operation of situation review meetings

The Infectious Disease Response Team held a total of two situation monitoring meetings and one debriefing meeting to share the event-related situation and the latest infectious disease information for the event area.

Next, preparedness and response activities were organized by time period.

2. Detailed Activities Before, During, and After the Event

1) Before the event

(1) Establishment and maintenance of a collaborative system

On November 6, 2025, 3 months before February 6, the opening date of the Milano Cortina 2026 Olympic and Paralympic Winter Games, a meeting was held, presided over by the Ministry of Culture, Sports and Tourism. The meeting's agenda was to discuss the preparation status for the event and support measures, and was attended by the relevant agencies, including the Ministry of Foreign Affairs, the Ministry of Unification, the National Counter-Terrorism Center, the Korean Sport & Olympic Committee, the Korea Paralympic Committee, and the KDCA (Figure 2). The Ministry of Culture, Sports and Tourism shared the preparation status and support measures for the event, and the relevant agencies explained their major activity plans. The KDCA shared information such as the status of infectious diseases in the host region and infectious diseases that may be prevalent during the relevant period. Subsequently, at the second written meeting on January 7, 2026, the details of the risk assessment conducted in December were shared.

(2) Risk assessment

The Division of Disease Surveillance Strategy analyzed the occurrence of major infectious diseases in Italy, including respiratory infectious diseases and waterborne and foodborne infectious diseases, and provided the data for risk assessment. Based on infectious disease occurrence data provided by the Division of Disease Surveillance Strategy, the Division of Epidemiological Data Analysis conducted the risk assessment, and the results informed preparedness and response strategies for the event.

The Division of Epidemiological data analysis conducted risk assessments on two occasions—in December 2025, 3 months before the competition, and in February 2026, immediately prior to the opening of the competition—to support the establishment of preparedness and response plans for the

Figure 2. Key activities of the Korea Disease Control and Prevention Agency (KDCA) Infectious Disease Countermeasure Task Force by Phase during the Milano Cortina 2026 Olympic and Paralympic Winter Games

ECDC=European Centre for Disease Prevention and Control; EIOS=Epidemic Intelligence from Open Sources; COVID-19=coronavirus disease 2019.

prevention of infectious diseases among the Korean delegation and Korean nationals. The subjects for evaluation were selected as six infectious disease groups to align with the targets for event-based surveillance: waterborne and foodborne infectious diseases, respiratory infectious diseases, vaccine-preventable diseases, vector-borne diseases, sexually transmitted infections, and viral hepatitis. The assessment method evaluated probability and impact, consistent with the domestic infectious disease risk assessment system, and calculated the final risk level by integrating them. Probability was assessed based on the status of infectious disease occurrence at the event host location by evaluating the risk of domestic introduction through local infection of Korean nationals, the risk of exposure of the domestic population, the level of population susceptibility, and the risk of community transmission, while impact was assessed by evaluating the severity of the disease, the level of social impact, and the level of domestic response capacity. Subsequently, the overall risk was calculated by applying the results of the probability and impact assessment to a risk matrix, and based on these results, necessary disease prevention and control measures, such as enhanced surveillance, preventive measures, risk communication, and the establishment of response plans, were formulated [6].

The two risk assessments were conducted approximately 2 months apart, and based on the assessment results, the overall risk level by infectious disease type remained unchanged.

Specifically, respiratory infectious diseases were assessed as "moderate"; waterborne and foodborne infectious diseases, vaccine-preventable diseases, and sexually transmitted infections as "low"; and vector-borne diseases and viral hepatitis as "very low."

For respiratory infectious diseases, the potential for outbreaks was assessed by incorporating factors such as winter epidemic characteristics, large-scale population movement, and crowded environments. Especially for measles, although the national second-dose measles vaccination rate is high at over 95% [7], considering the trend of continuous worldwide occurrence and the low local vaccination rate [8], it was determined that vaccination recommendations were necessary for unvaccinated individuals among the athletic delegation and visitors.

For waterborne and foodborne infectious diseases, recent trends in case incidence in Italy, transmission routes, and winter epidemic characteristics were considered. Among these, norovirus infection was prevalent in the winter, and as outbreaks have occurred at large-scale mass gathering events such as the 2018 PyeongChang Winter Olympic Games, caution was deemed necessary [9]. Vector-borne diseases were evaluated considering the period of vector activity, and viral hepatitis was evaluated considering transmission routes, among other factors.

(3) Quarantine preparedness

The National Incheon Airport Quarantine Station made preparations for quarantine measures to prevent the entry and spread of overseas infectious diseases in response to the potential for their domestic introduction. Before the event, Olympic card-news videos were displayed via digital signage, and in-house infectious disease response training was conducted to strengthen response capacity. In addition, to ensure a rapid response in the event of symptomatic individuals suspected of having an infectious disease among incoming travelers, movement routes were reviewed, and an environment for isolation and observation rooms was established in preparation for outbreaks. Additionally, during the Olympic and Paralympic Games, gate screening was conducted to strengthen quarantine for travelers arriving from Italy. This strategy was planned as a measure to enable a rapid response if symptomatic cases occurred by deploying Epidemiological Investigation Officer or public health doctors on-site upon the arrival of direct flights from Italy.

(4) Formation and operation of the infectious disease response team

The KDCA established an Infectious Disease Response Team headed by the Director General of the Department of Infectious Disease Emergency Preparedness and Response on January 16, 2026 (Figure 1). The response team consisted of five teams—the Situation Management Team, Infectious Disease Management Team, Epidemiological Support Team, Entry and Quarantine Management Team, and Public Communication Support Team—that were organized to perform their respective functions. It also held a pre-event situation review meeting to review response preparedness.

(5) Establishment of an infectious disease preparedness and response plan

On January 19, 2026, an infectious disease preparedness and response plan was established for the athletic delegation from the ROK, covering the entire process before departure,

during the period of stay, and after returning to the country. The plan included prevention and management components, such as an infectious disease risk assessment and infectious disease surveillance in the relevant area, the formation and operation of the response team and the roles of each team, and preventive measures for major infectious diseases.

(6) Guidance and promotion of preventive measures

After establishing the preparedness and response plan, preventive measures for major infectious diseases, such as respiratory infectious diseases and waterborne and foodborne infectious diseases, were communicated through the Ministry of Culture, Sports and Tourism. The participating delegations and the athletic delegation were informed of the recommendation for measles vaccination in preparation for respiratory infectious disease outbreaks and were urged to comply with preventive measures. Subsequently, on January 29, a press release providing recommendations and personal hygiene rules for the prevention of major infectious diseases was distributed to our delegation and visitors participating in the Olympic Games.

2) During the event

(1) Maintenance of the collaborative system

On January 29, one week before the opening of the Milano Olympic Games, a hotline was established between the relevant agencies and local situation room support personnel to enable the rapid sharing of information in the event of an infectious disease situation. This collaborative system was continuously maintained throughout the event period. After the Olympic Games ended on February 22, the Winter Paralympic Games Situation Team was put into operation on February 28, one week before the start of the Winter Paralympic Games. An emergency contact network for the local situation room was established, centered on the Korea Paralympic Committee, and a cooperative system was maintained among the relevant agencies, including the KDCA. Through this approach, the communication system with local personnel was continuously maintained, and the infectious disease occurrence status was monitored, including event-based surveillance, by receiving daily situation reports shared by the local Korean Sport & Olympic Committee and the Korea Paralympic Committee.

From February 4, 2026, a Joint Government Rapid Response Team led by the Counter-Terrorism Center was established to share information on local incidents and the security situation, and information on related situations was received during the Olympic Games.

Additionally, after the closing of the Winter Olympic Games and in preparation for the Paralympic Games, the latest respiratory infectious disease occurrence status in Italy, based on local infectious disease surveillance trends and the latest data available as of week 8 of 2026, was shared, and the participating delegations and athletic delegations were requested to provide guidance and urge caution with reference to the respiratory infectious disease occurrence status.

(2) Infectious disease surveillance

During the event period the Emergency Operations Center and the Division of Disease Surveillance Strategy regularly monitored infectious disease occurrence trends in the host country, Italy, using the event-based surveillance system.

Based on official data from sources such as the Italian National Institute of Health, the Division of Disease Surveillance Strategy analyzed the weekly occurrence trends of respiratory

infectious diseases that had been assessed as having an overall risk level of "intermediate" in the infectious disease risk assessment results. The occurrence of acute respiratory infections continued to decline, with differences observed by infectious disease. Influenza and COVID-19 remained at low levels overall, whereas respiratory syncytial virus infection showed an increasing trend during the Olympic Games but declined before the Paralympic Games.

The Emergency Operations Center further strengthened event-based surveillance related to mass gatherings, focusing on Europe, including the host country, Italy. The WHO's web-based infectious disease surveillance system, EIOS, and other overseas infectious disease information websites were monitored on an ongoing basis. Surveillance information collected in real time, such as trends in major infectious disease outbreaks, was shared daily with the response team, and a daily situation report was prepared. EIOS is an event-based surveillance system that collects and analyzes infectious disease information from open sources in real time to enable the early detection of potential risk signals, and the information collected was used as baseline data for risk assessment and for reviewing the need for a response. The infectious diseases subject to surveillance were selected by focusing on disease groups with an increased risk of transmission and a high potential for outbreaks in environments where large crowds gather, such as large-scale international events. These disease groups included respiratory infectious diseases, waterborne and foodborne infectious diseases, vector-borne diseases, vaccine-preventable diseases, sexually transmitted infections, and viral hepatitis. The intensive surveillance period lasted from January 30, 2026, before the opening ceremony, to March 15, 2026, when the closing ceremony was held. During the surveillance period, two cases of norovirus infection and one case of COVID-19 were identified. Specifically, four cases of norovirus infection were reported among the Finnish women's ice hockey delegation on February 4, 2026, one case among the Swiss women's ice hockey delegation on February 7, 2026, and two cases of COVID-19 among support personnel of the Australian national team on February 4, 2026. All of these cases were identified early and were reported and shared through the EIOS-based surveillance system.

The Emergency Operations Center and the Division of Disease Surveillance Strategy supported risk assessment and situation management through continuous surveillance and analysis of infectious disease occurrence trends in the host country and provided baseline data necessary for the operation of the response system for international mass gathering events.

Additionally, since the start of the Olympic Games, the National Incheon Airport Quarantine Station implemented enhanced monitoring for unusual findings on four regularly scheduled weekly direct flights arriving from Milan and Rome, Italy. Measures included re-checking for additional symptoms during the quarantine stage and, for some incoming aircraft, operating thermal surveillance cameras in front of the gate. Epidemiological Investigation Officer and public health doctors were also placed on standby at the quarantine site in preparation for the occurrence of symptomatic cases.

(3) Infectious disease occurrence status report

There were reports of norovirus infection and COVID-19 infection among international athletic delegations and officials before the opening of the Milan Winter Olympic Games.

Norovirus infection occurred among the Finnish national ice hockey team and related personnel on February

3, and as a result, 13 individuals were placed in isolation [10]. Accordingly, the ice hockey game between Finland and Canada, originally scheduled for February 5, was postponed by one week and held on February 12. Two staff members of the Australian athletic delegation developed symptoms on January 28 and 31, respectively, and they were subsequently tested positive for COVID-19 [11]. The Olympic Organizing Committee implemented quarantine measures for confirmed cases and exposed individuals and additionally implemented infection prevention measures, such as food and beverage management and personal hygiene.

The intensive surveillance period based on the event-based surveillance system was in operation from January 30, 2026. However, the COVID-19 cases were first detected through EIOS and the media on February 4, 2026, just before the opening of the Olympic Games, and it was subsequently confirmed that one of these cases had symptom onset on January 28, 2026. That is, the date of symptom onset was before the intensive surveillance period, but the event was recognized and reported through the event-based surveillance system during the surveillance period.

Through the emergency contact network, the KDCA confirmed with the Ministry of Culture, Sports and Tourism that there were no infectious disease cases or exposed individuals among the athletic delegation of the ROK and that there were no reports of any other health-related issues. At the time, although the occurrence of the infectious disease in the Milano Athletes' Village was limited to a specific team, it was assessed that caution was necessary given the potential for transmission to the athletic delegation of the ROK through life in the Athletes' Village, and the situation was closely monitored.

Additionally, the Infectious Disease Response Team instructed the on-site athletic delegation's medical team to communicate the occurrence of norovirus infection and COVID-19, and to re-emphasize adherence to preventive measures for waterborne and respiratory infectious diseases, such as handwashing for at least 30 seconds, consuming fully cooked food and drinking safe water, wearing a mask when respiratory symptoms were present, and ventilating indoor spaces. Additionally, they were instructed to minimize contact with other athletes in the Athletes' Village and to emphasize monitoring if there were individuals with suspected symptoms within the athletic delegation.

On February 6, the day the norovirus infection was recognized, the situation was promptly reported to the Agency, and the infectious disease occurrence status was continuously monitored. Furthermore, a precautionary press release was also planned for distribution in the event that additional cases occurred; however, the situation was subsequently resolved safely, with no further transmission related to norovirus infection or COVID-19. Subsequently, surveillance of local daily situation reports received through March 15, the closing date of the Milano Winter Olympic and Paralympic Games, revealed no unusual findings related to infectious diseases.

(4) Weekly situation report

After the Olympic Games began, the Infectious Disease Response Team conducted weekly situation reports. It was scheduled for 10:00 AM every Thursday as a baseline but was operated flexibly depending on the situation. The Emergency Operations Center reported on the implementation of enhanced event-based surveillance focused on Italy; the Division of Disease Surveillance Strategy reported on major occurrence trends, including respiratory infectious diseases; and the

Division of Emergency Preparedness and Response monitored the infectious disease situation by receiving daily situation reports from the Korean Sport and Olympic Committee and the Korea Paralympic Committee, and reported and shared the response measures taken by the response team. This analysis was conducted a total of three times, on February 12 and 19, and March 12.

3) After the event

In Milano, following the closing ceremony of the Paralympic Games on March 15, the Infectious Disease Response Team held an end-of-response meeting the next day to summarize its activities and evaluate its operations. The progress made to date in relation to the event was shared, and it was announced that the event had concluded. Furthermore, although the Games had concluded, follow-up monitoring of travelers arriving from Italy was conducted for up to 14 days to account for those entering the country after remaining locally and to prepare for the occurrence of symptomatic cases.

Discussion

This study is meaningful as an example of establishing a national infectious disease preparedness and response system for international mass gathering events and applying it in an actual situation. It can be assessed as having contributed to infection prevention for the athletic delegation of the ROK by establishing an interagency cooperation system among relevant government agencies, organizing an Infectious Disease Response Team, conducting infectious disease risk assessment and surveillance, and operating risk communication and situation management functions in an integrated manner. For this series of processes, a total of 39 response team personnel were deployed for infectious disease preparedness and response; the preparation and activity period was four months, and nine departments, including the Division of Disease Surveillance Strategy, the Division of Epidemiological Data Analysis, and the Emergency Operations Center, cooperated. In addition, during the Winter Olympic and Paralympic Games, a total of 20,342 athletes, athletic delegation officials, general passengers, and flight crew arrived from Italy, with 14,548 arriving during the Olympic Games and 5,794 during the Paralympic Games.

Out of a total of 20,342 arrivals, all were screened, and there was one symptomatic case. This case occurred during the Paralympic Games period, but the individual had only rhinorrhea with no epidemiologic linkage and, therefore, did not meet the criteria for testing.

The Milano Cortina 2026 Olympic and Paralympic Winter Games implemented preparedness and response activities for each phase and sector of the event based on the Standard Operating Procedures for Mass Gathering Events [5]. However, during the event period, although information on cases of norovirus infection and COVID-19 was collected through various channels, including media reports and the EIOS, there were some limitations in promptly obtaining detailed information and officially confirmed data on the local situation. Additionally, although a cooperation system had been established with relevant agencies, one limitation was that real-time discussions with the on-site situation room were not smooth. For infectious disease preparedness and response at future similar overseas mass gathering events, supplementary measures are required when operating without on-site dispatched personnel. During the phase of establishing a

cooperation framework with relevant agencies, a cooperation framework should be established through sufficient advance discussions with personnel scheduled to be deployed to the on-site situation room regarding the actual targets and procedures for intersectoral information sharing, the timing taking into account the time difference in the event location, and other related matters.

Based on a review of the infectious disease preparedness and response for the 2026 Milano Games, it is necessary to accumulate case studies from various mass gathering events and further develop a standardized infectious disease response system based on these cases when managing future international sporting events and large-scale mass gatherings.

Declarations

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PHWR
Public Health Weekly Report

청소년 현재 음주율 추이, 2016–2025년

청소년의 현재 음주율은 2025년 남학생 9.8%, 여학생 6.1%로 지난 10년간 감소 경향이었고, 특히 여학생은 2016년의 절반 수준이었다(그림 1). 고등학생(12.1%)의 현재 음주율이 중학생(4.1%)보다 약 3배 정도 높았다(그림 2).

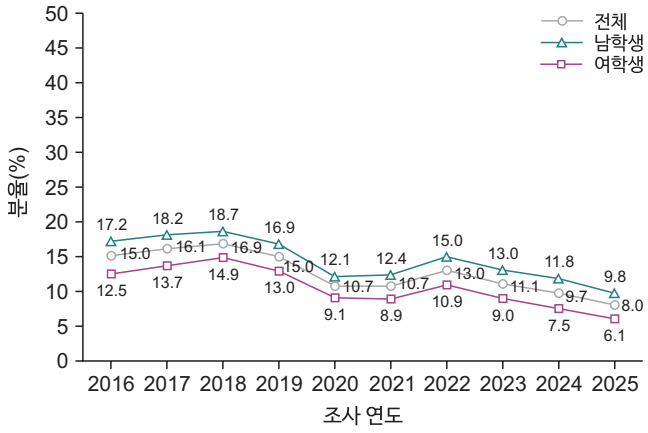

그림 1. 성별 현재 음주율 추이, 2016–2025년
*현재 음주율: 최근 30일 동안 1잔 이상 술을 마신 적이 있는 분율

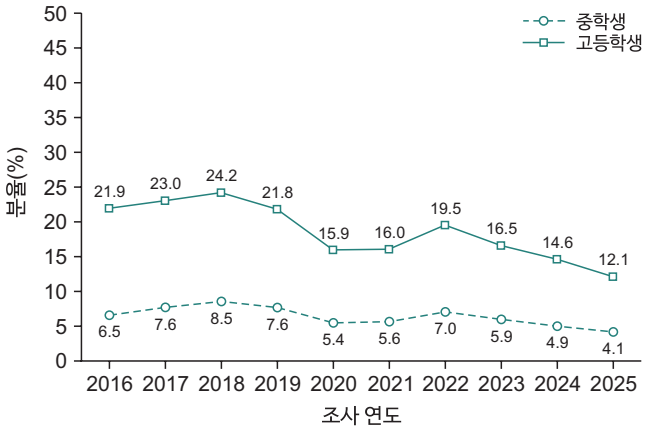

그림 2. 학교급별 현재 음주율 추이, 2016–2025년

출처: 제21차(2025년) 청소년건강행태조사 통계, https://www.kdca.go.kr/yhs/

작성자: 질병관리청 만성질환관리국 건강영양조사분석과 김양하

KDCA
Korea Disease Control and Prevention Agency

QuickStats

Trends in the Prevalence of Current Drinking among Korean Adolescents, 2016–2025

In 2025, the prevalence of current drinking was 9.8% among boys and 6.1% among girls, showing a decreasing trend over the past 10 years. Among girls, the prevalence was approximately half the level observed in 2016 (Figure 1). The prevalence of current drinking was approximately three times higher among high school students (12.1%) than among middle school students (4.1%) (Figure 2).

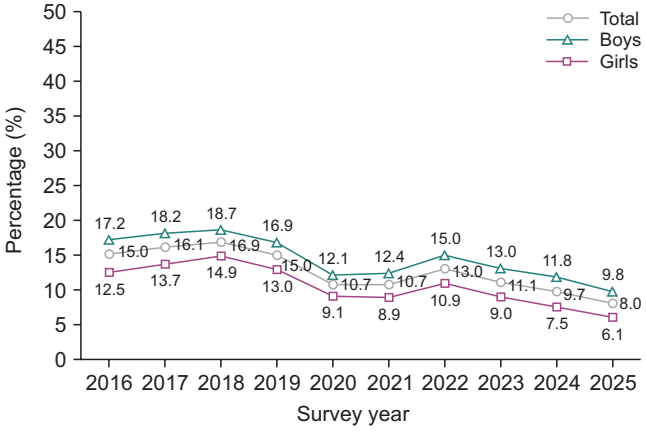

Figure 1. Trends in the prevalence of current drinking by sex, 2016–2025

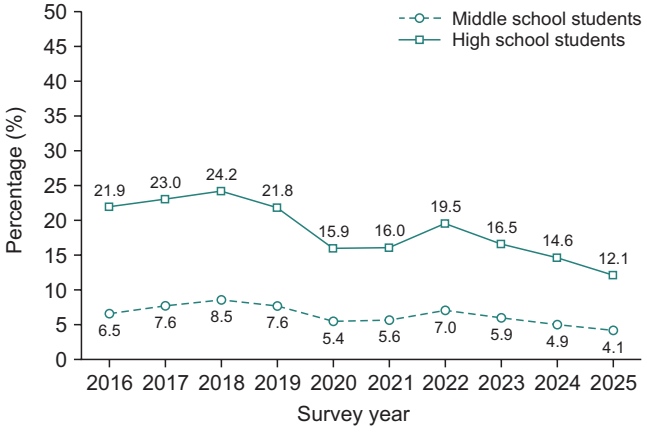

Figure 2. Trends in the prevalence of current drinking by school levels, 2016–2025

*Prevalence of current drinking: proportion of adolescents who consumed one or more alcoholic drinks during the past 30 days.

Source: The 21th Korea Youth Risk Behavior Survey 2025 (KYRBS), http://www.kdca.go.kr/yhs/

Reported by: Yangha Kim, Division of Health and Nutrition Survey and Analysis, Department of Chronic Disease Prevention and Control, Korea Disease Control and Prevention Agency