

Time to First Mortality Peak by Public Health Response Time

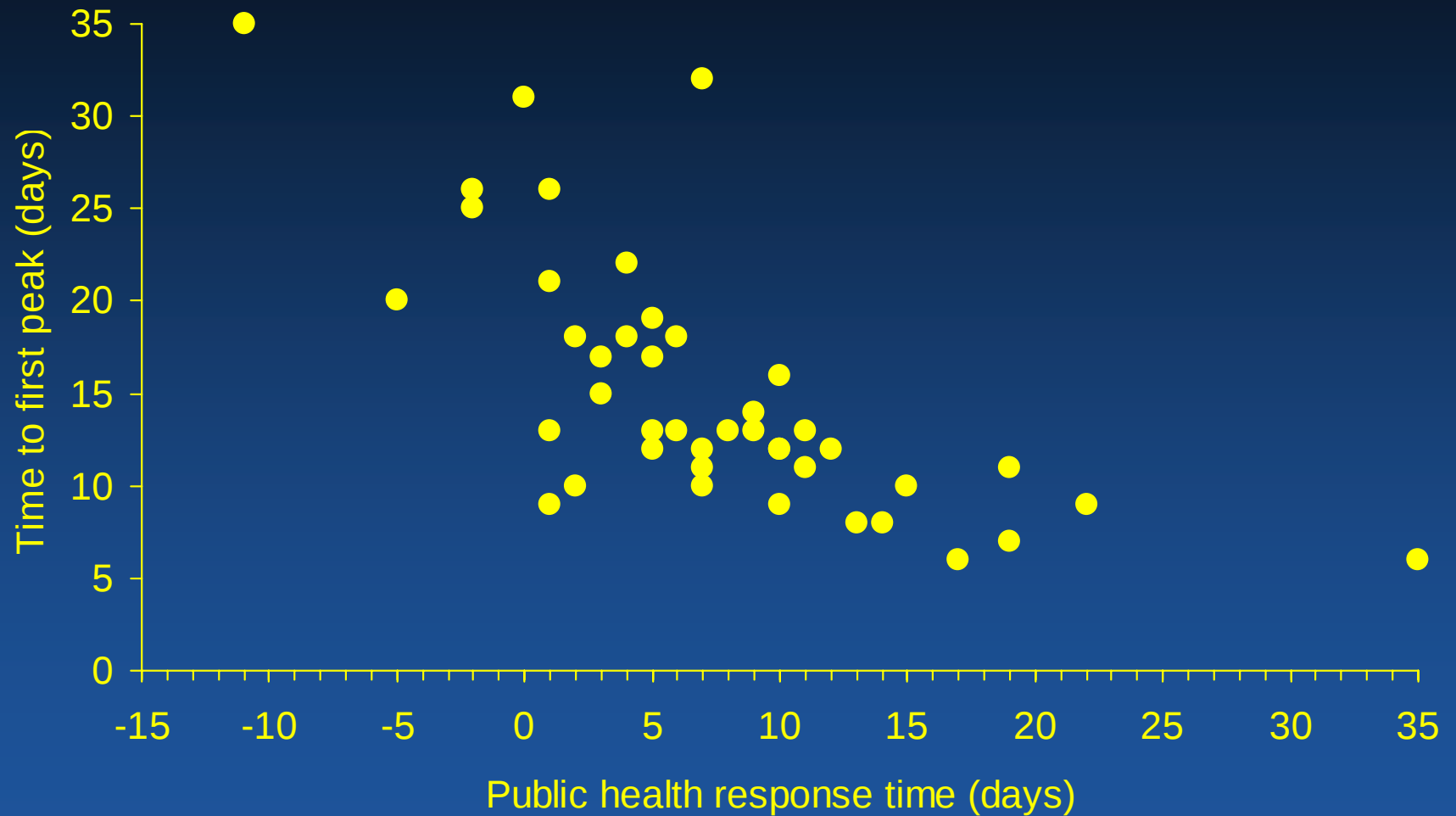
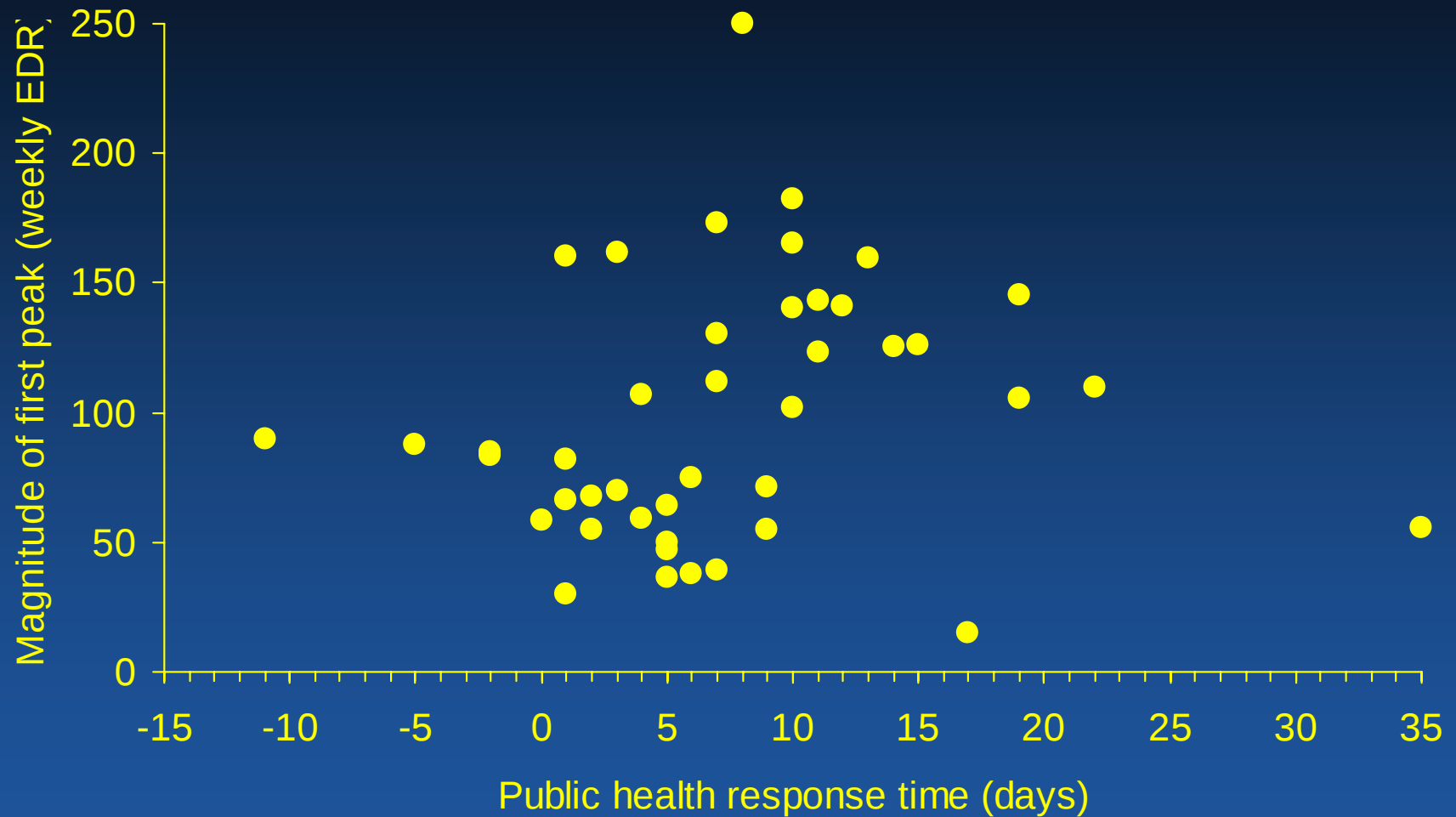


Figure 1

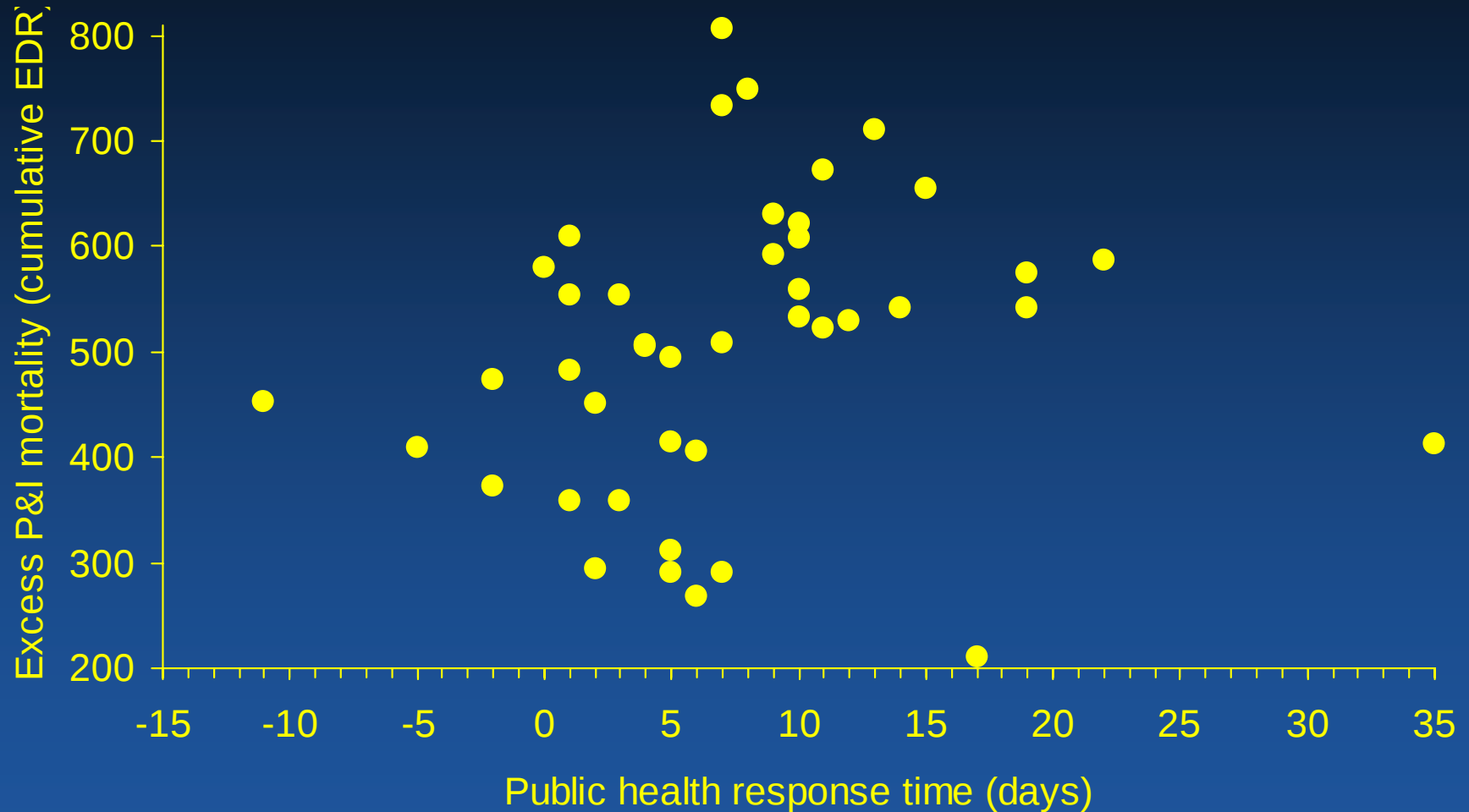
Magnitude of First Mortality Peak by Public Health Response Time



Spearman's $r = 0.31$ $p = .024$

Figure 2

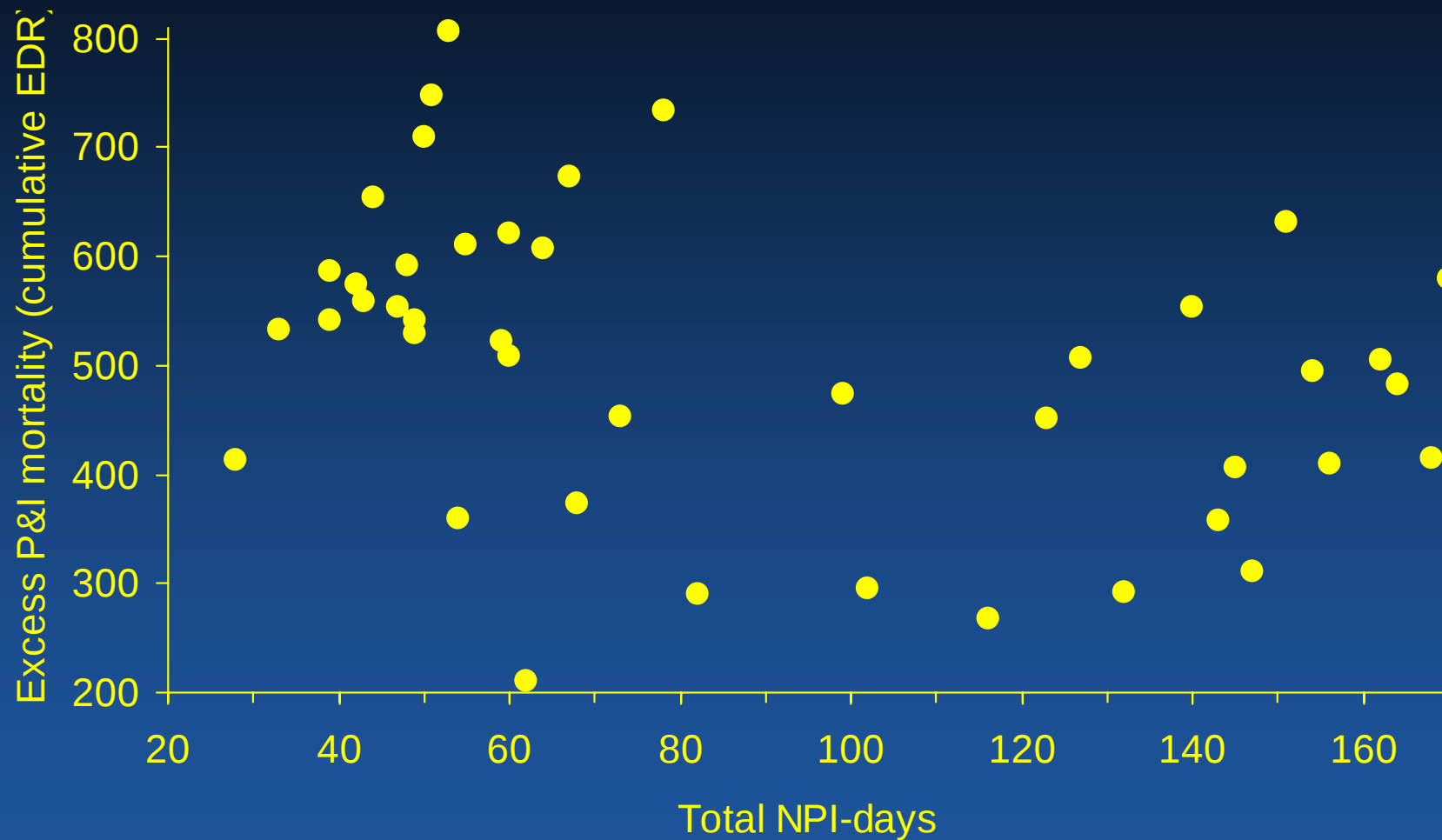
Excess Pneumonia and Influenza Mortality by Public Health Response Time



Spearman's $r = 0.37$ $p = .008$

Figure 3

Excess Pneumonia and Influenza Mortality by Total NPI-days



Spearman's $r = -0.39$ $p = .005$

Figure 4

Excess Death Rate (per 100,000) by Region

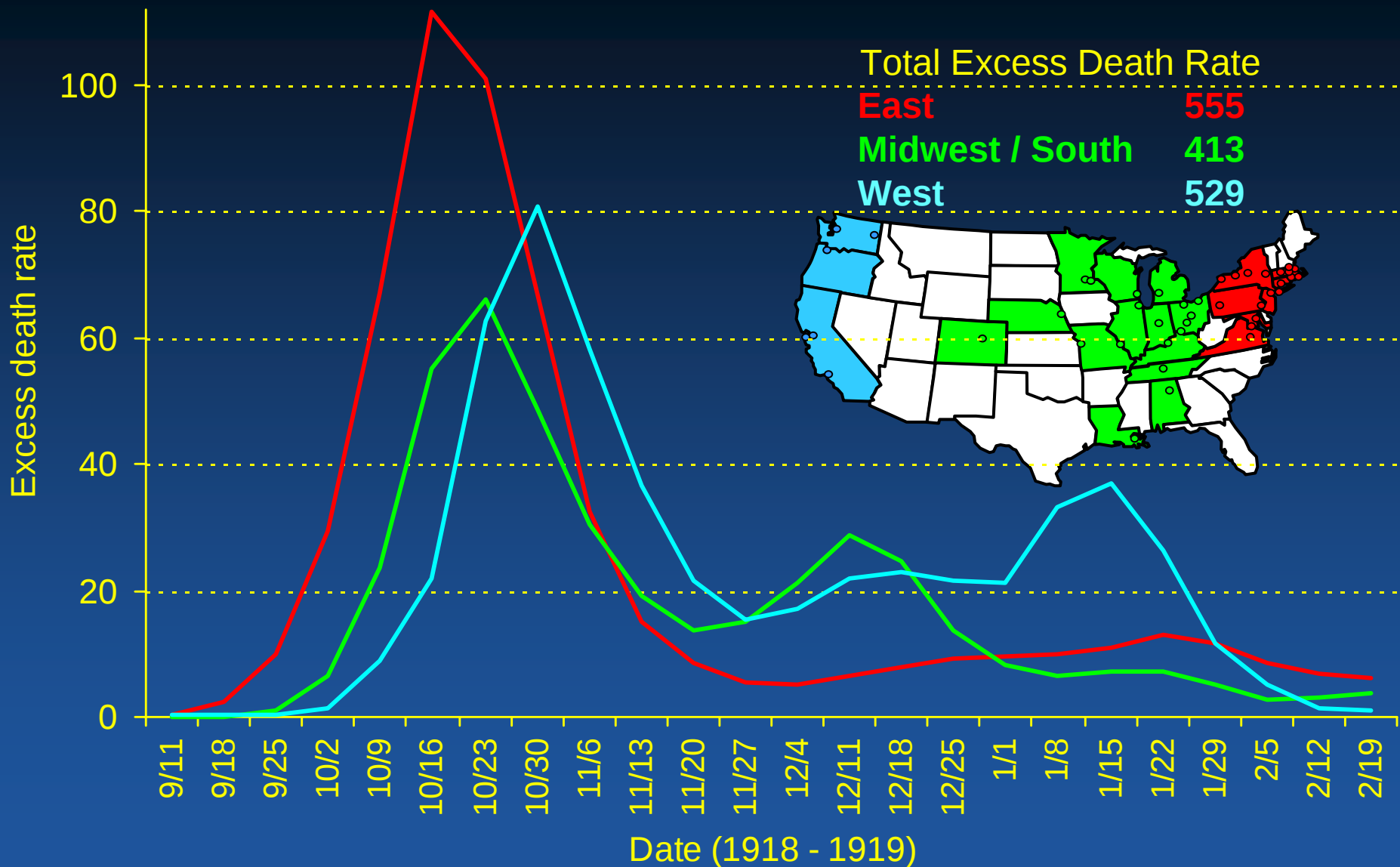
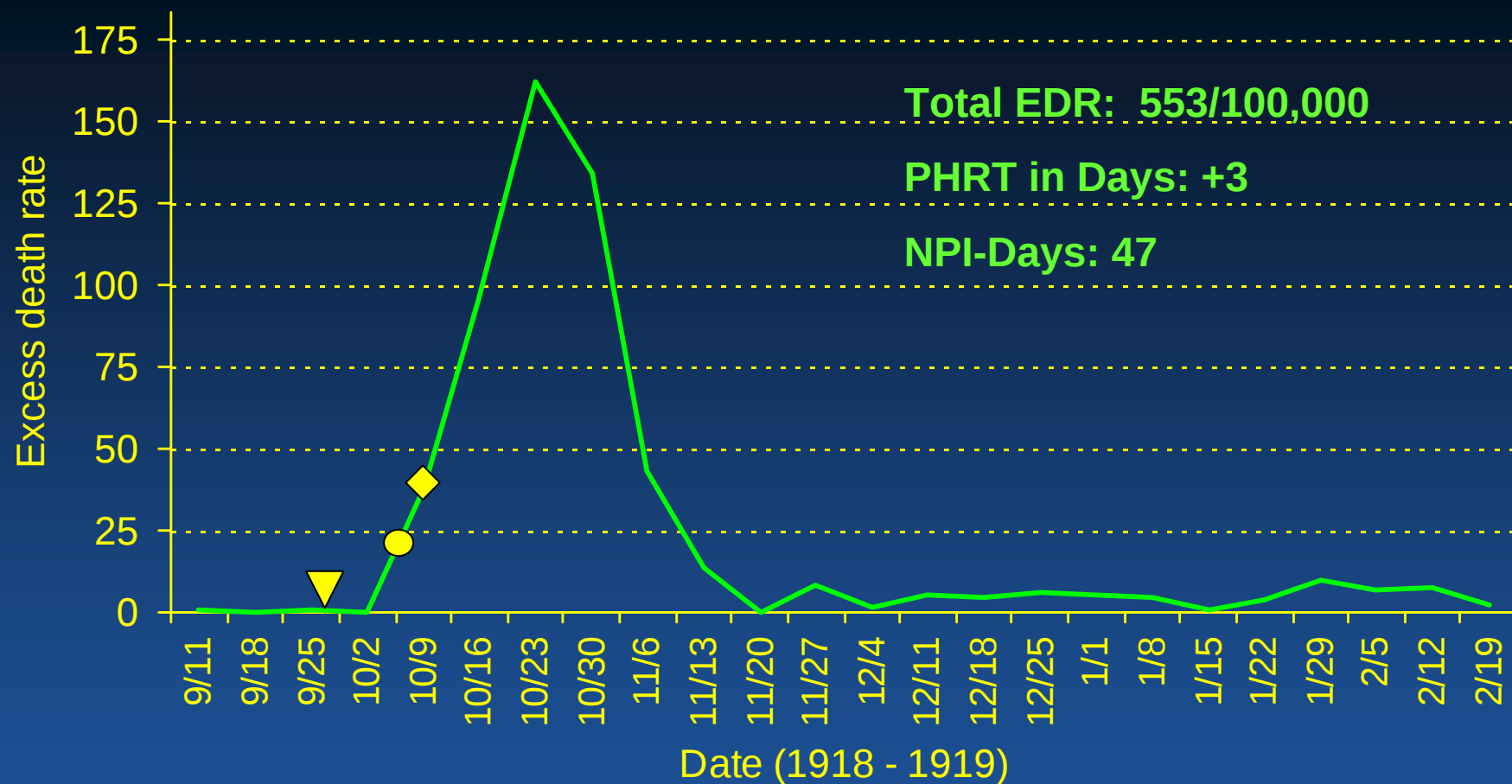


Figure 5

Excess Death Rates (per 100,000) - Albany



School closure

Public gathering ban

Other NPIs

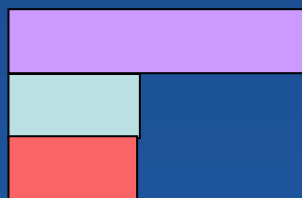


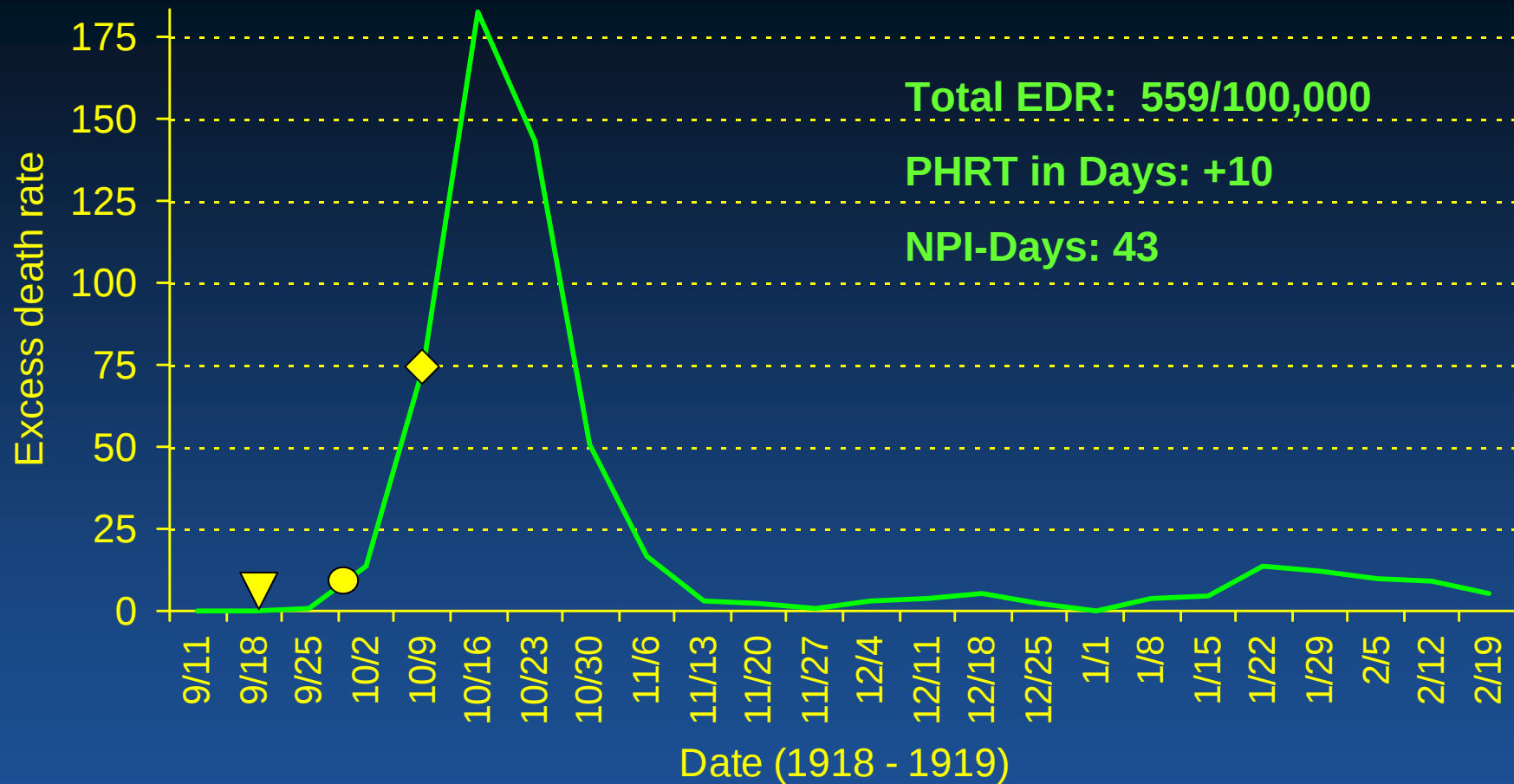
Figure 6

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Baltimore



School closure

Public gathering ban

Other NPIs

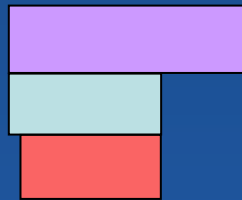


Figure 7

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Birmingham

Total EDR: 592/100,000

PHRT in Days: +9

NPI-Days: 48

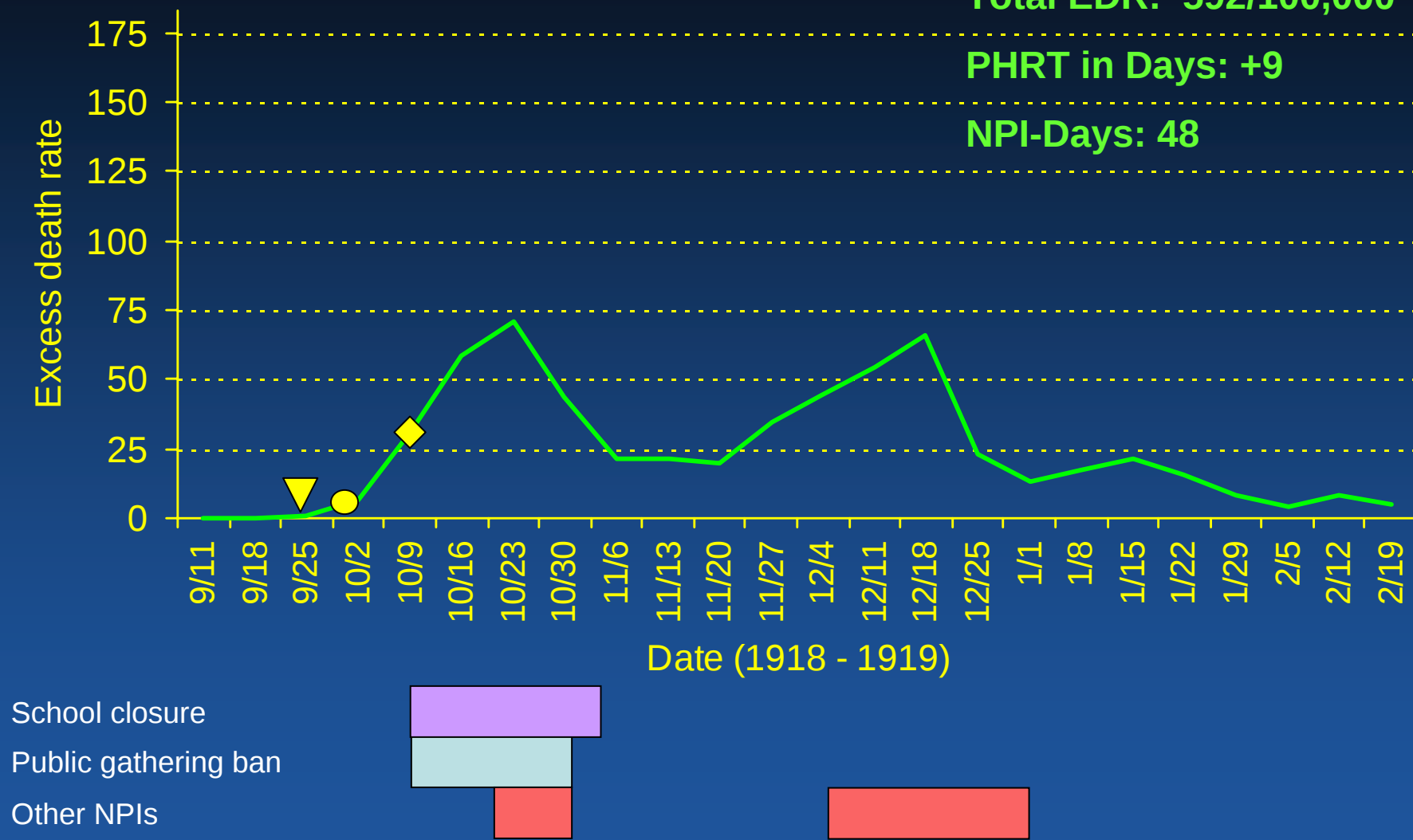


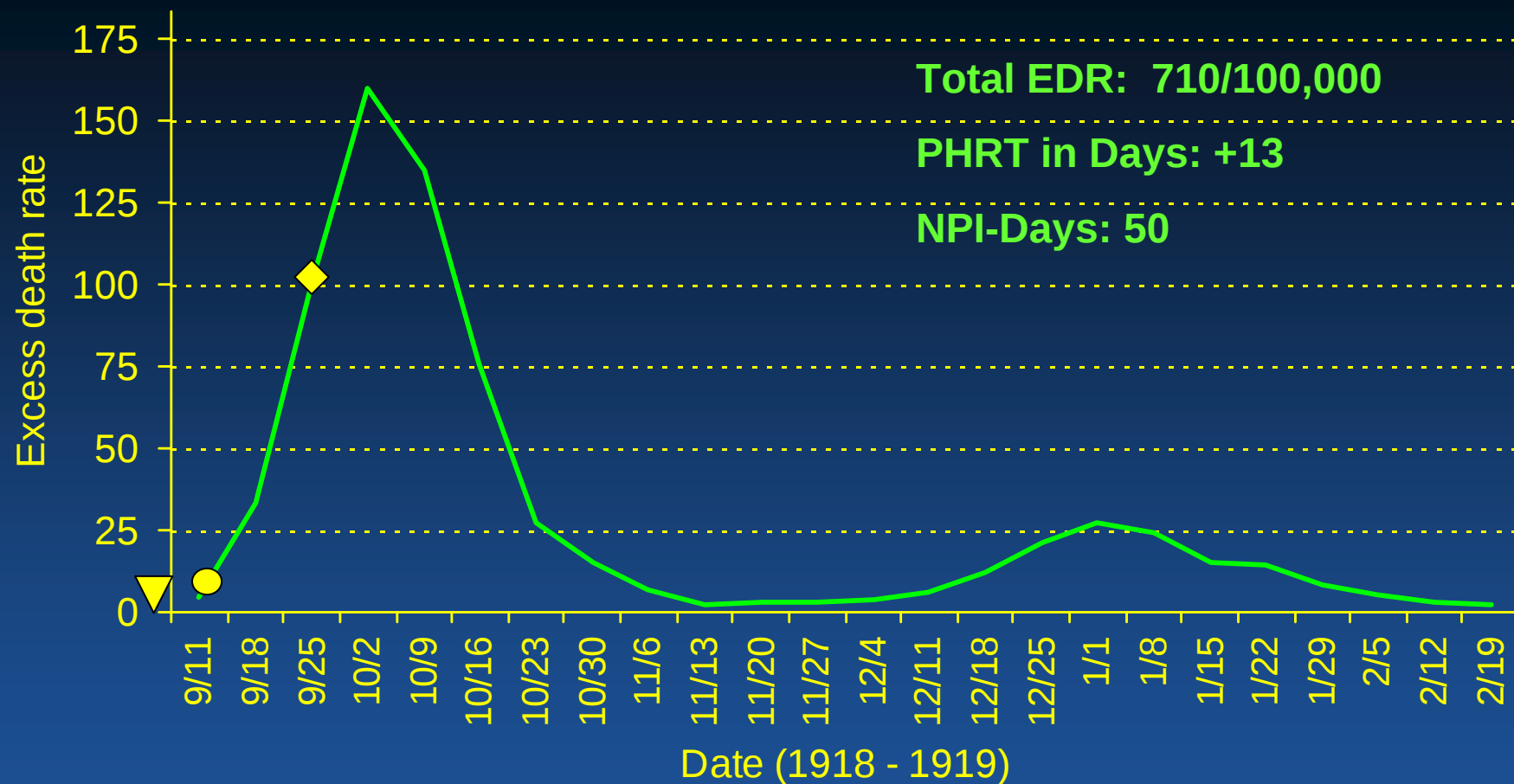
Figure 8

first case

2 X baseline mortality

first major NPI

Excess Death Rates (per 100,000) - Boston



School closure

Public gathering ban

Other NPIs



first case



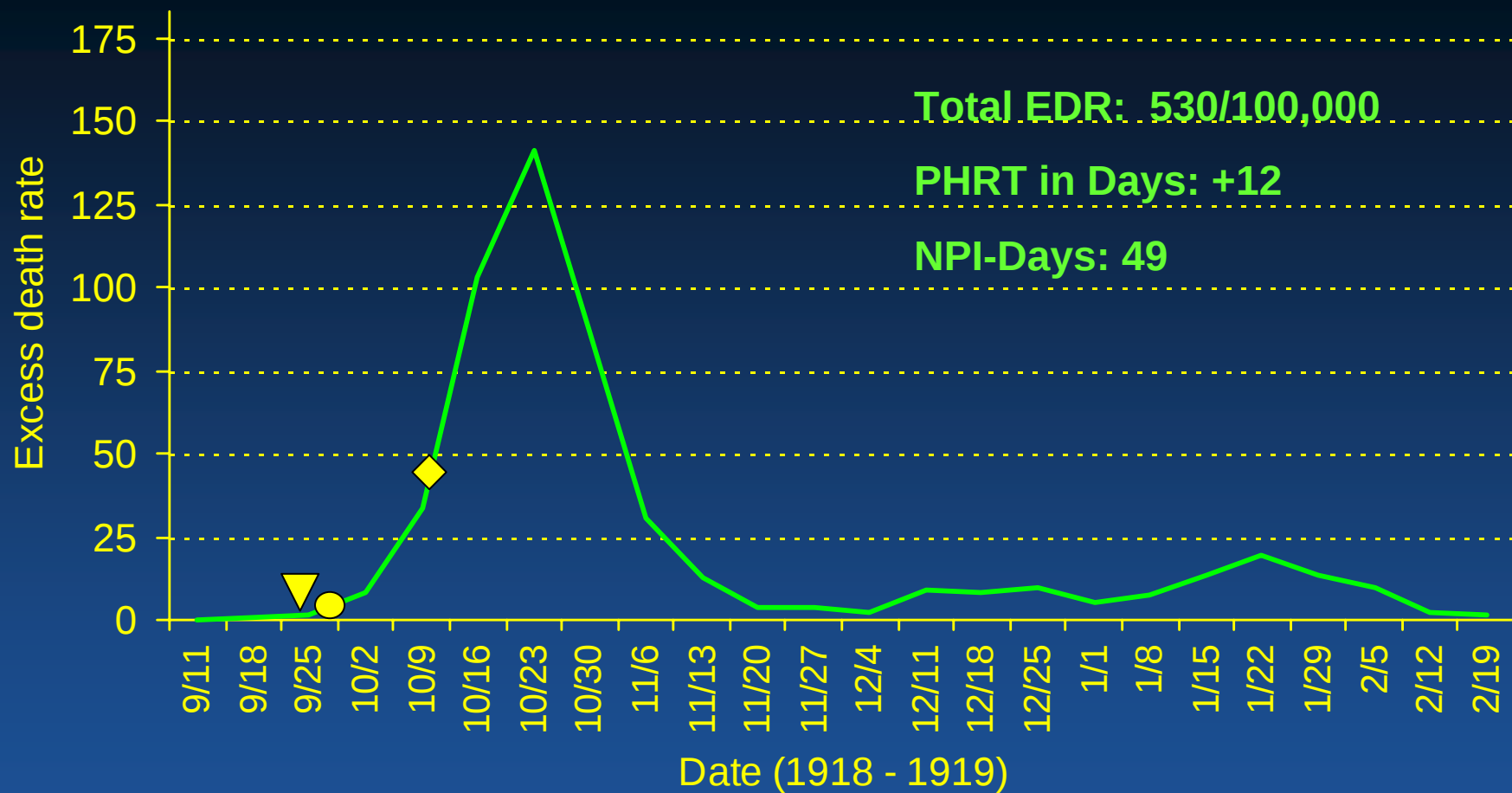
2 X baseline mortality



first major NPI

Figure 9

Excess Death Rates (per 100,000) - Buffalo



Public gathering ban
School closure
Other NPIs

Figure 10

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Cambridge

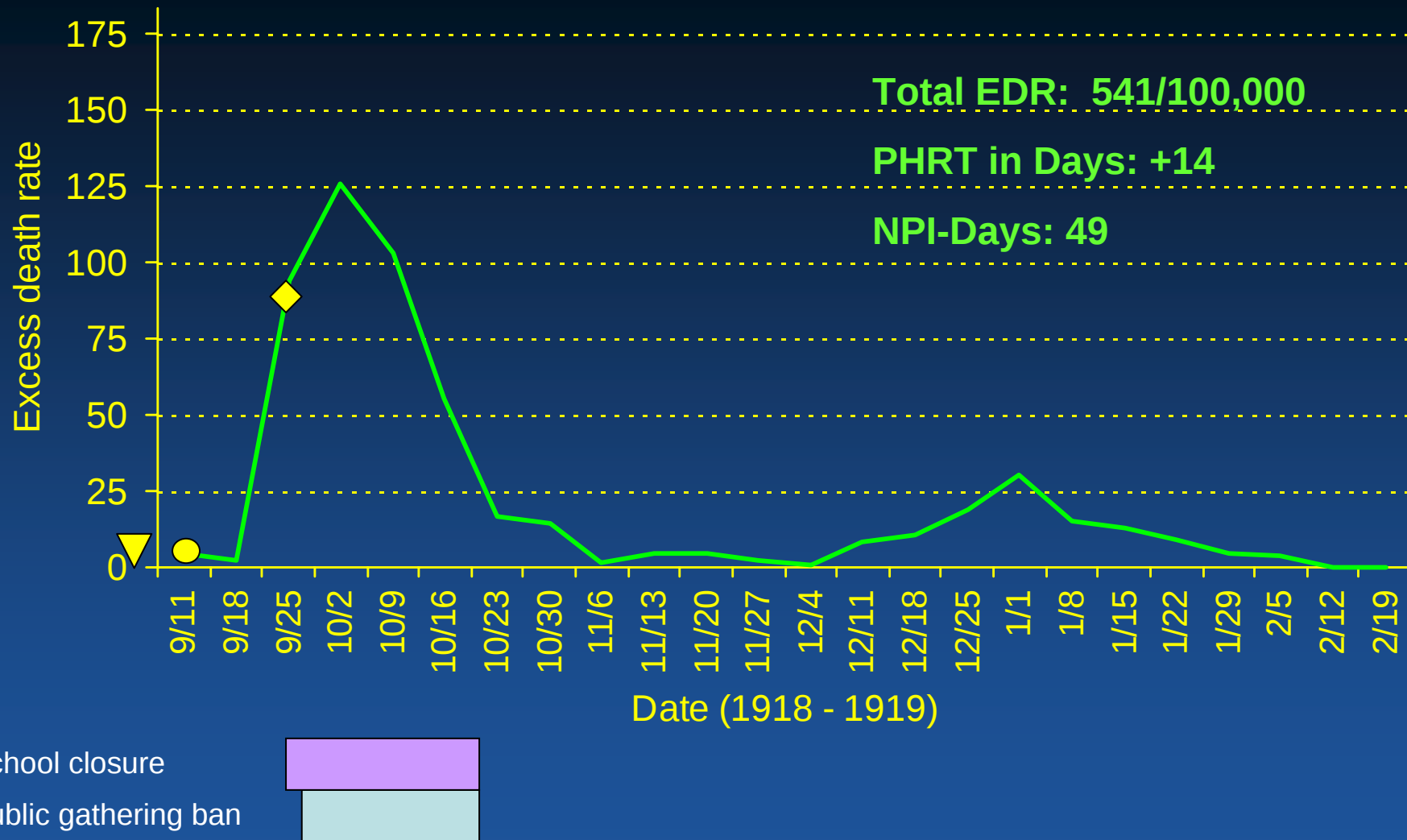


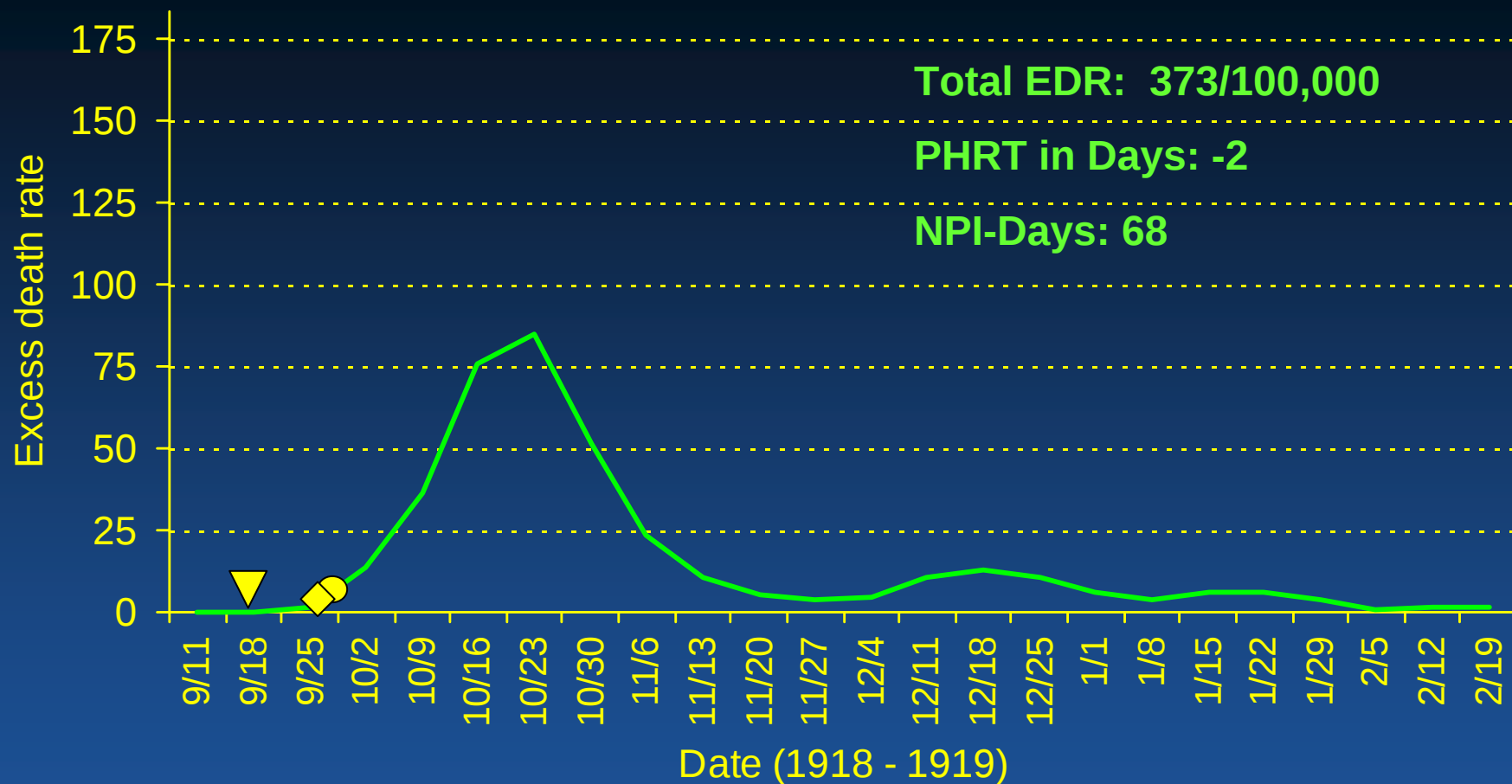
Figure 11

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) -Chicago



Public gathering ban
Isolation/Quarantine
Other NPIs



Figure 12

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Cincinnati

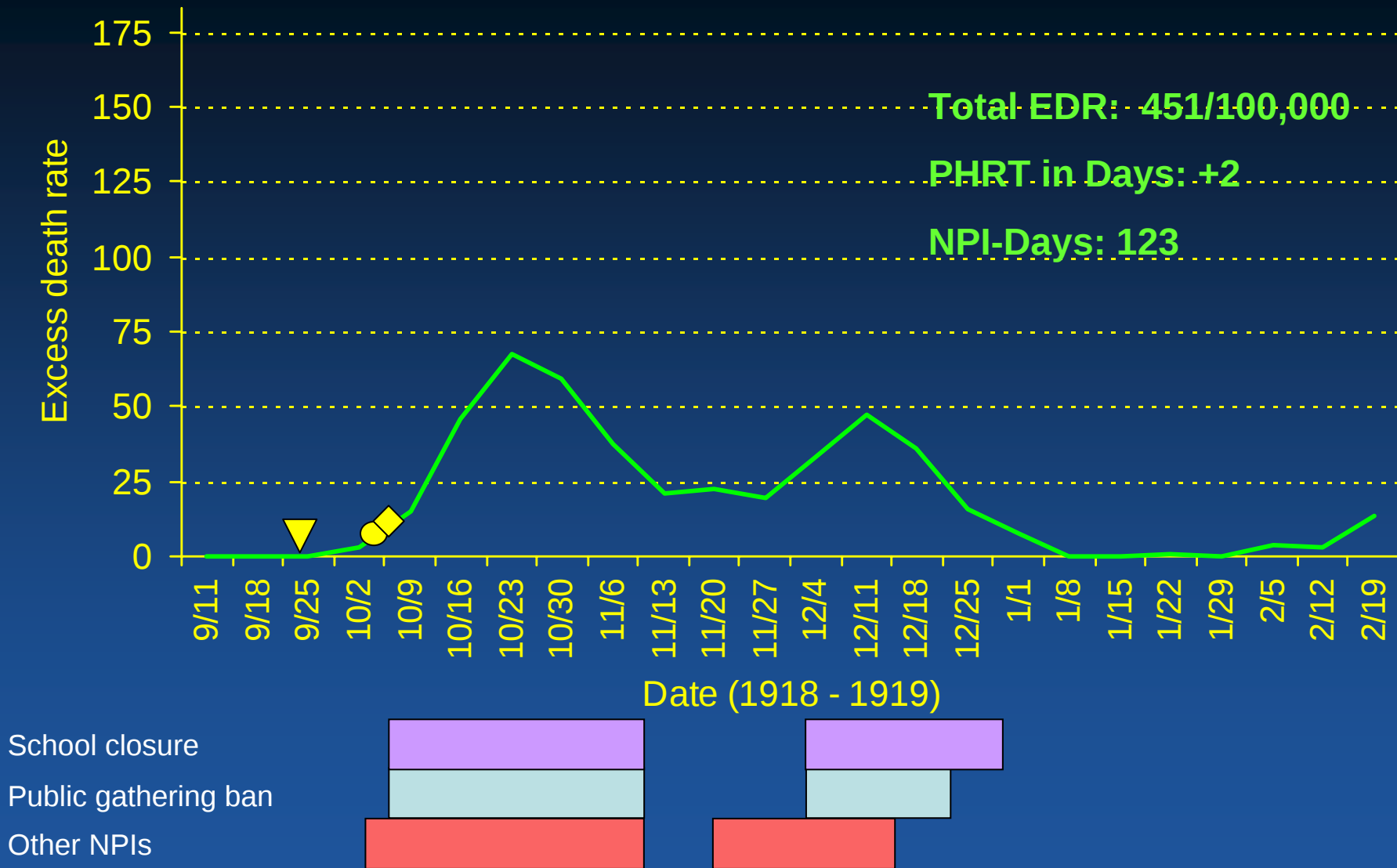


Figure 13

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) -Cleveland

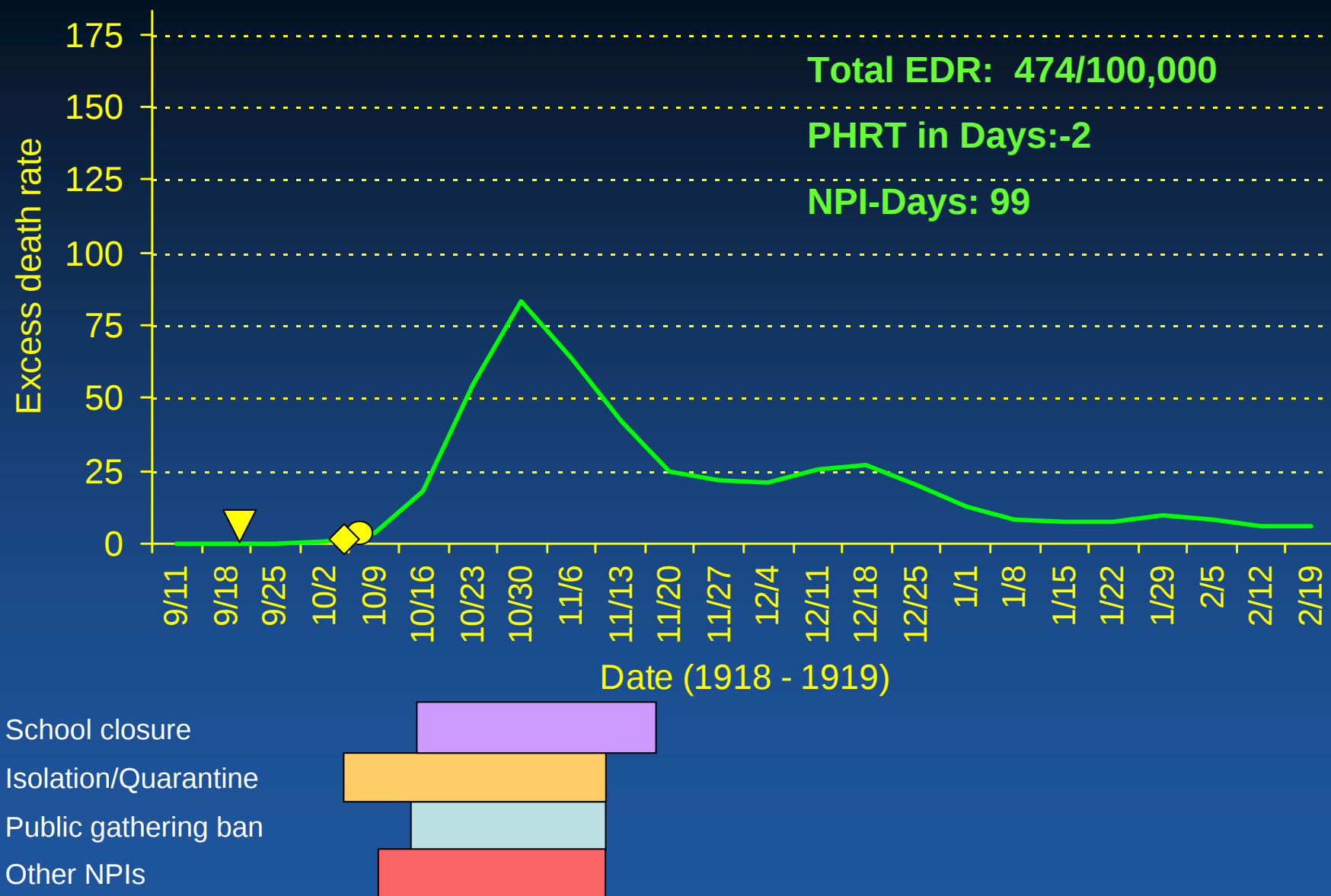


Figure 14

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Columbus

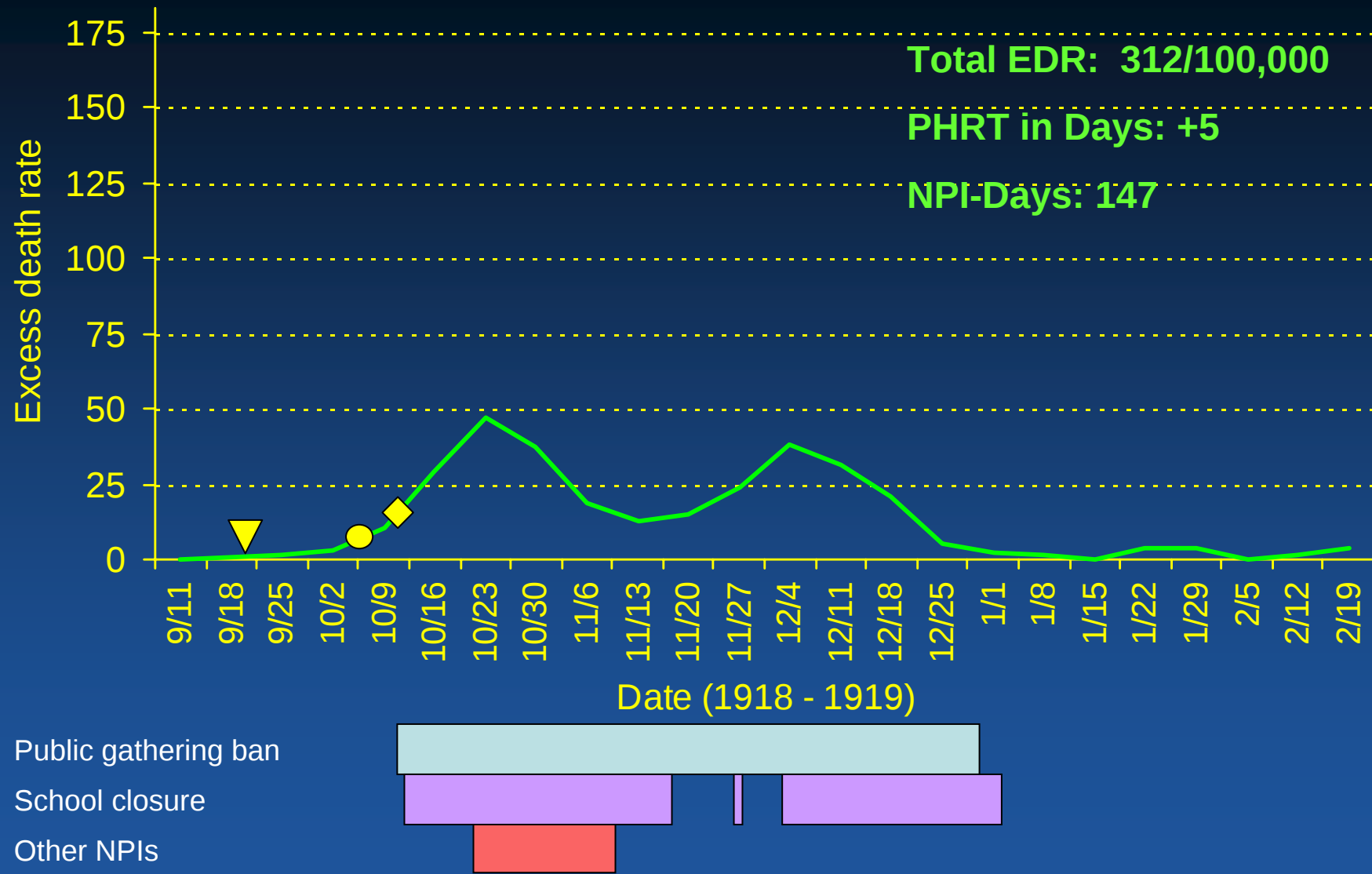


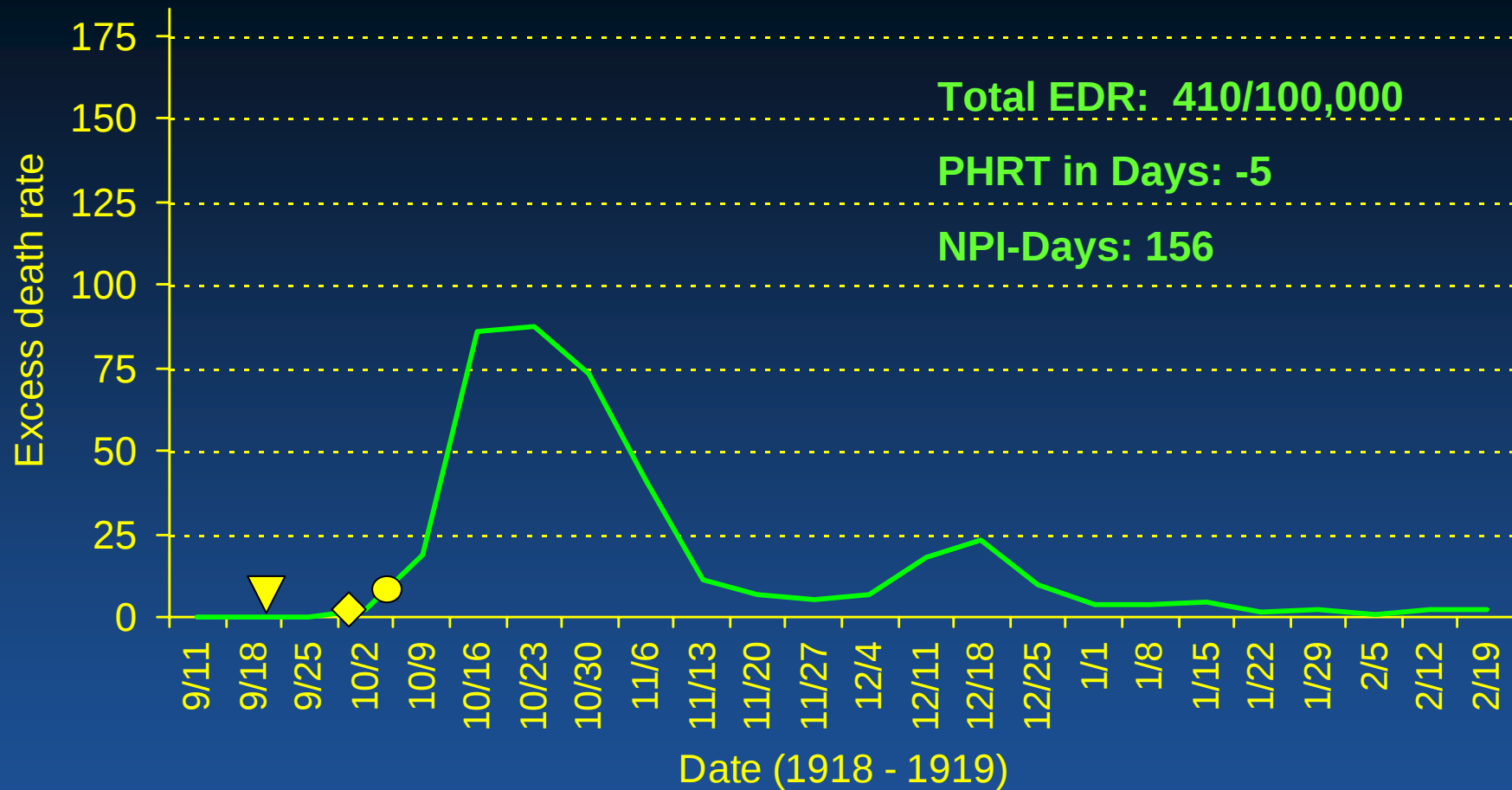
Figure 15

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Dayton



Isolation/Quarantine

School closure

Public gathering ban



first case



2 X baseline mortality



first major NPI

Figure 16

Excess Death Rates (per 100,000) - Denver

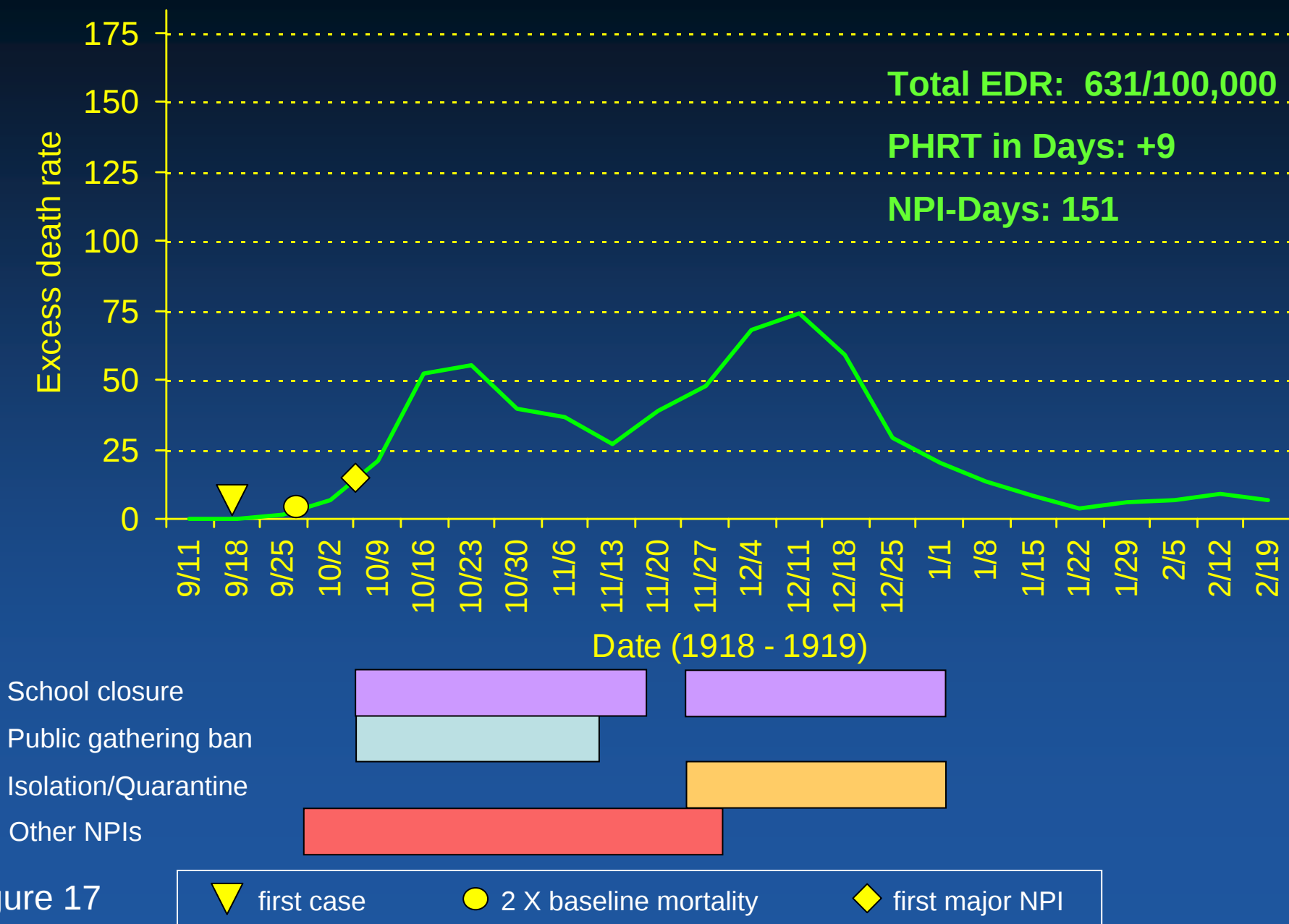
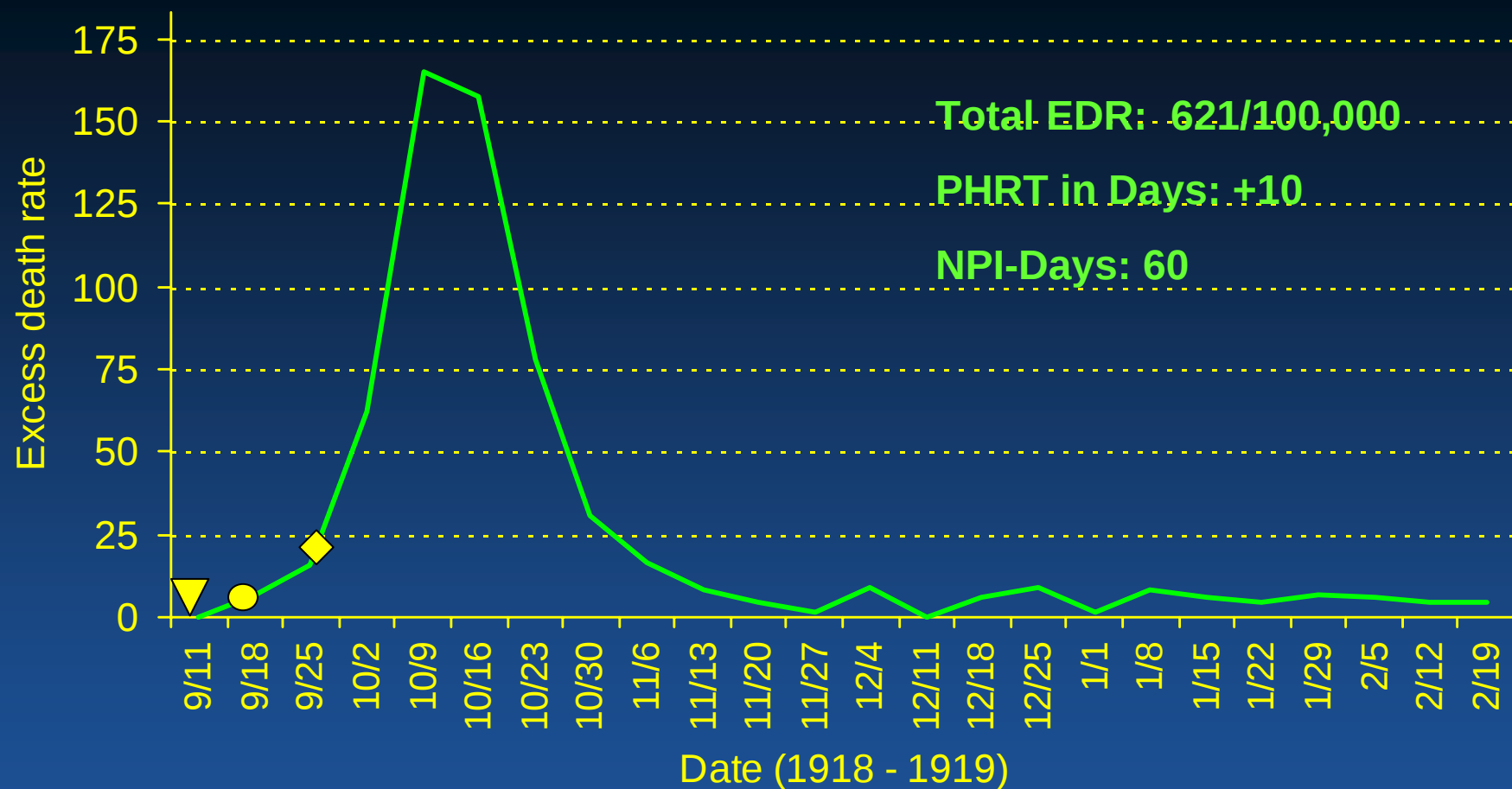


Figure 17

Excess Death Rates (per 100,000) - Fall River



School closure
Public gathering ban
Other NPIs

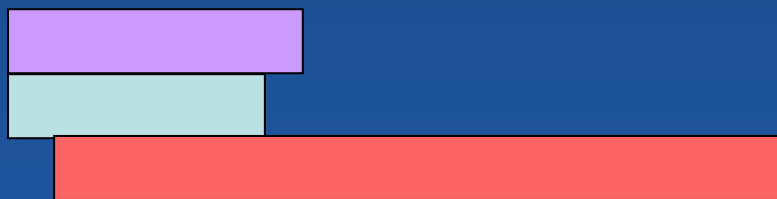


Figure 18

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Grand Rapids

Total EDR: 211/100,000

PHRT in Days: +17

NPI-Days: 62

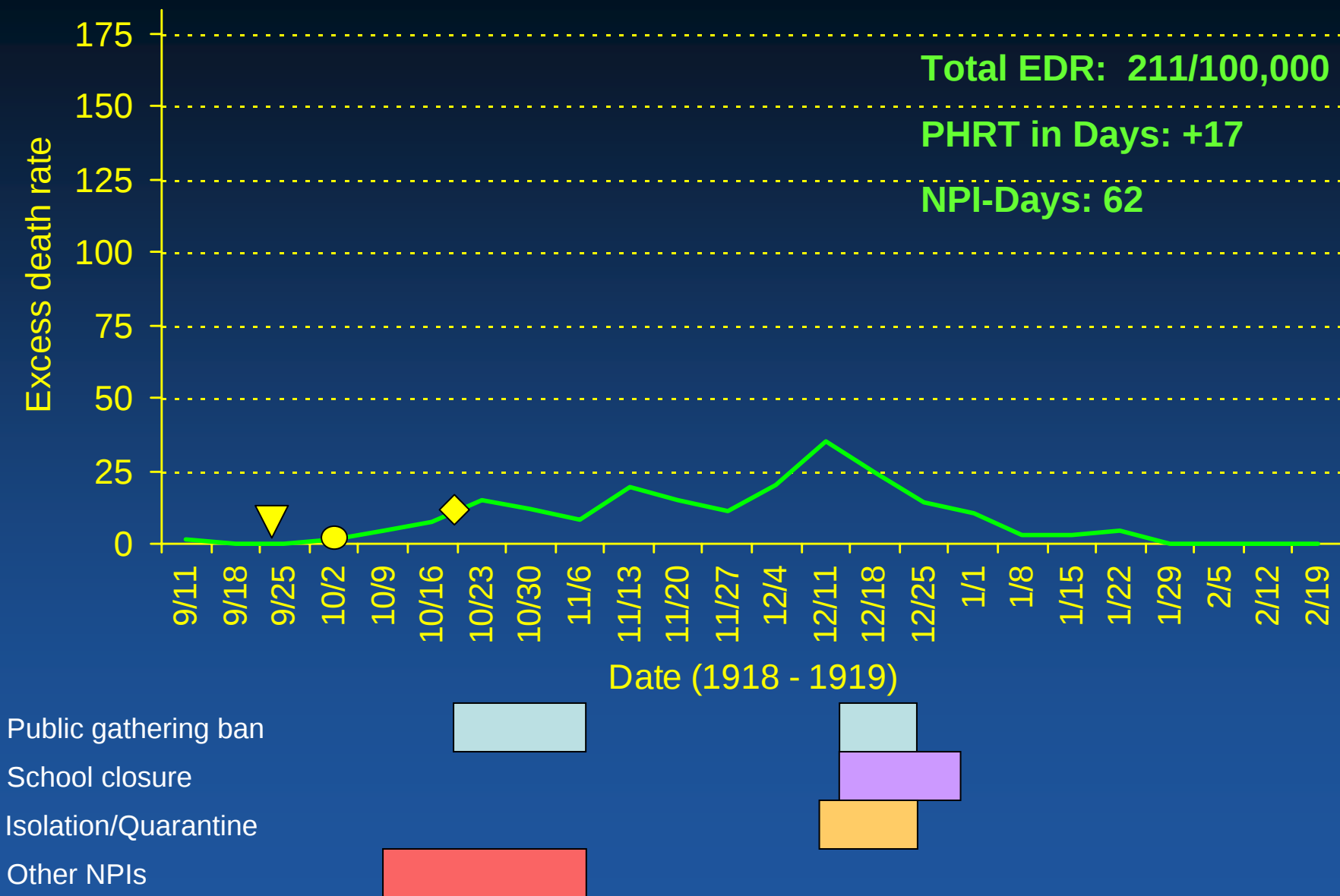


Figure 19

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Indianapolis

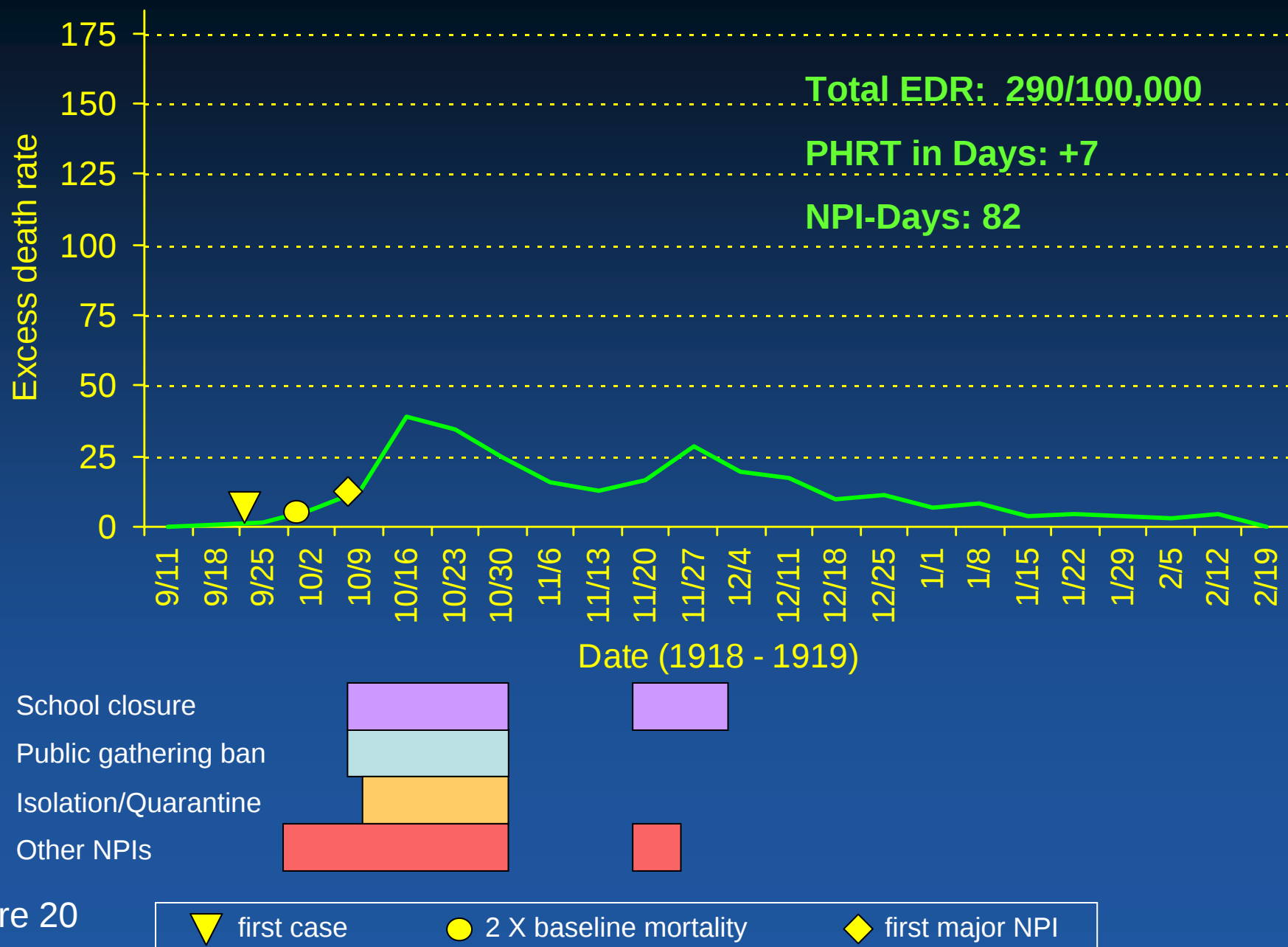


Figure 20

Excess Death Rates (per 100,000) - Kansas City

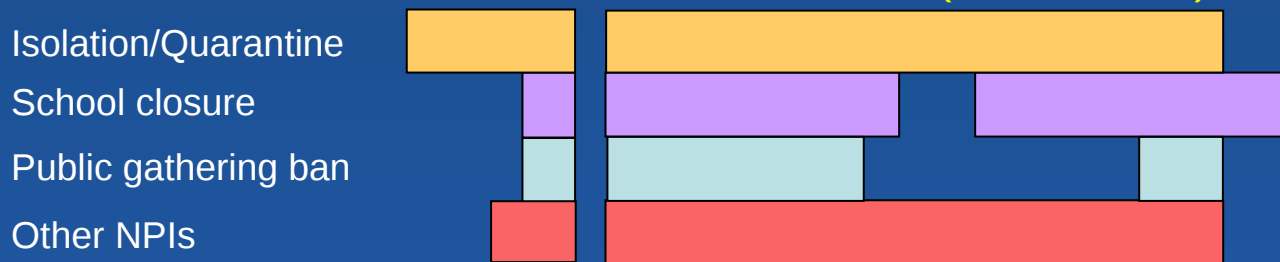
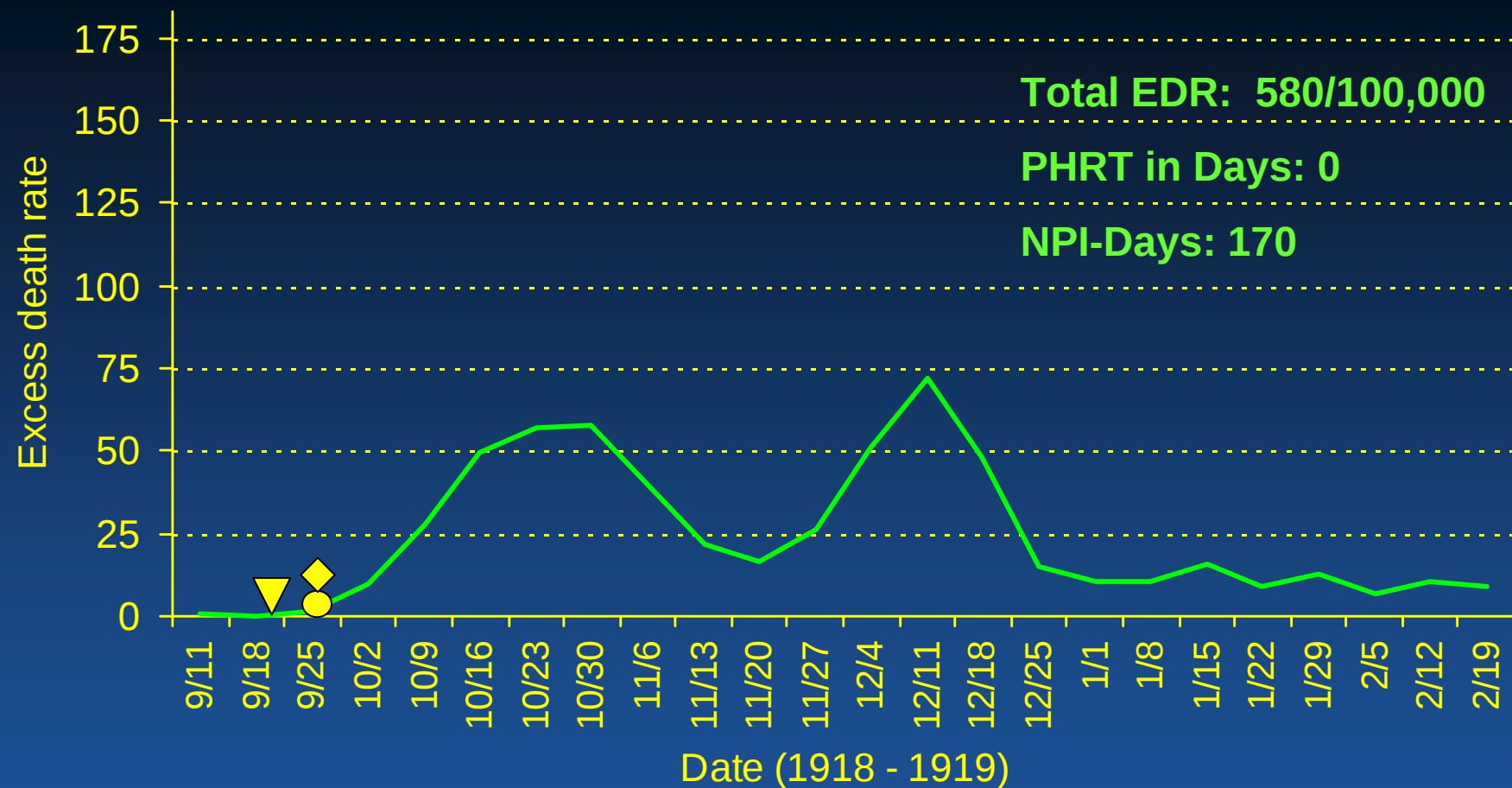


Figure 21



Excess Death Rates (per 100,000) - Los Angeles

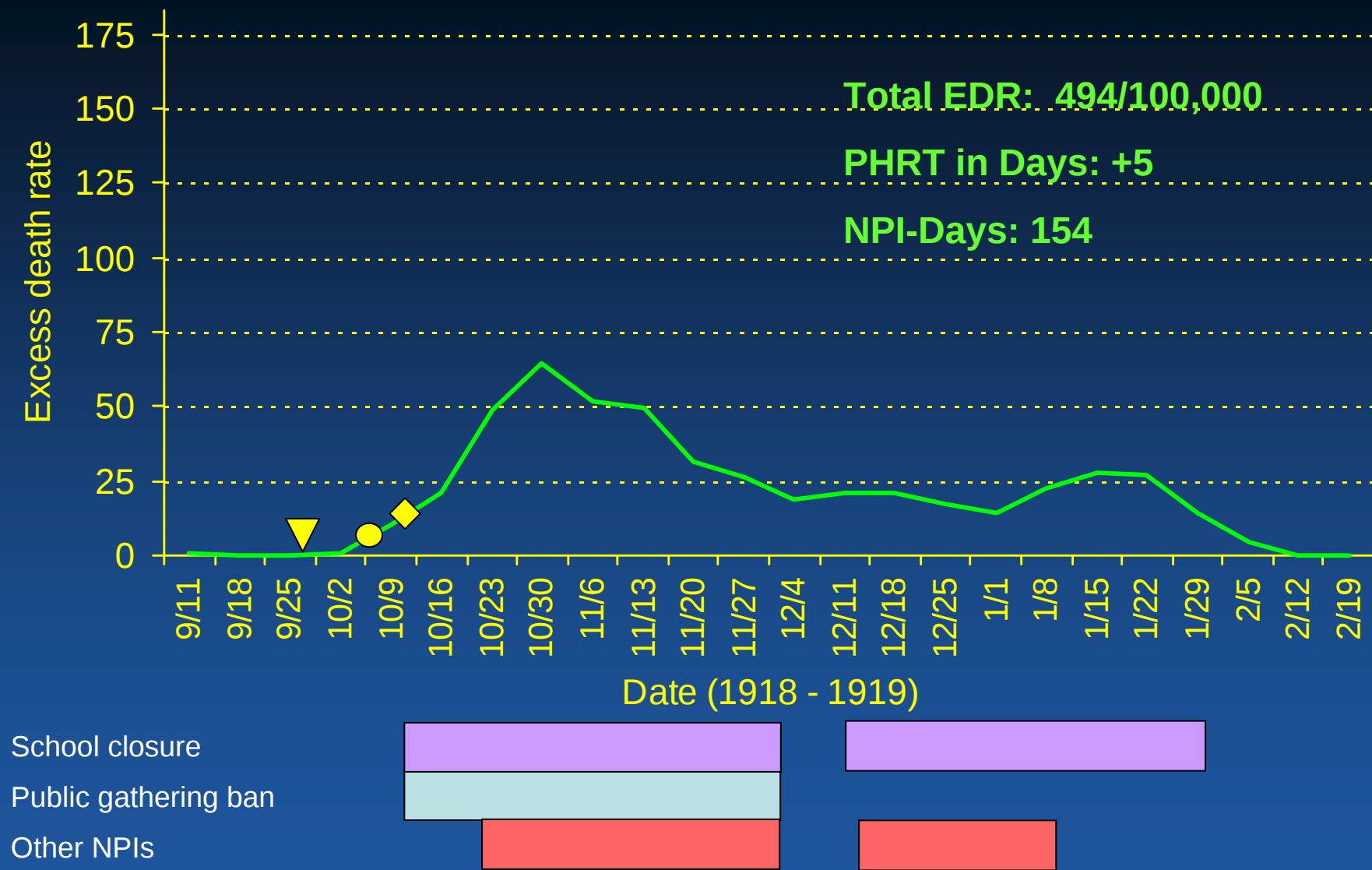


Figure 22

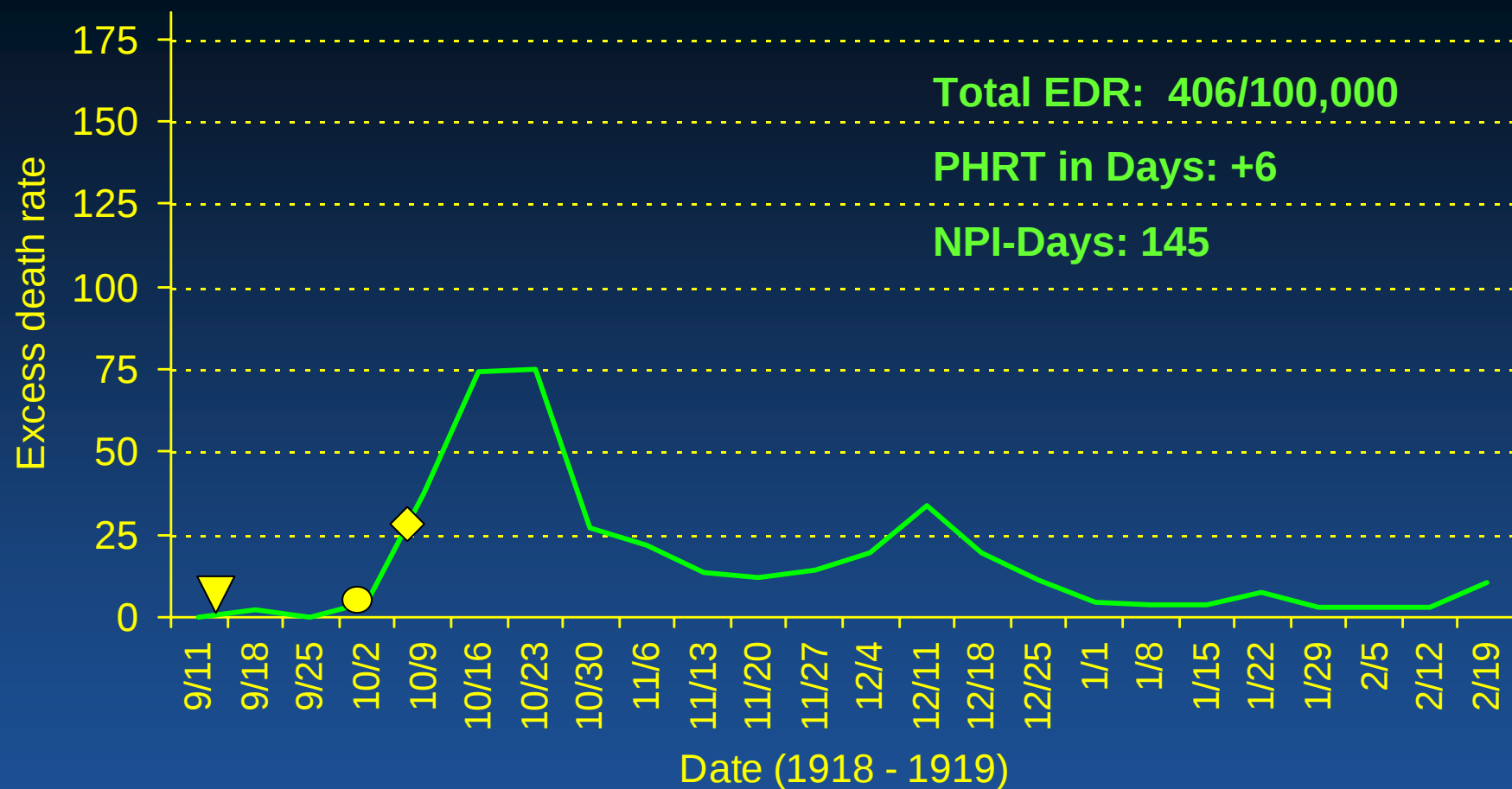


Excess Death Rates (per 100,000) - Louisville

Total EDR: 406/100,000

PHRT in Days: +6

NPI-Days: 145



School closure
Public gathering ban
Isolation/Quarantine
Other NPIs

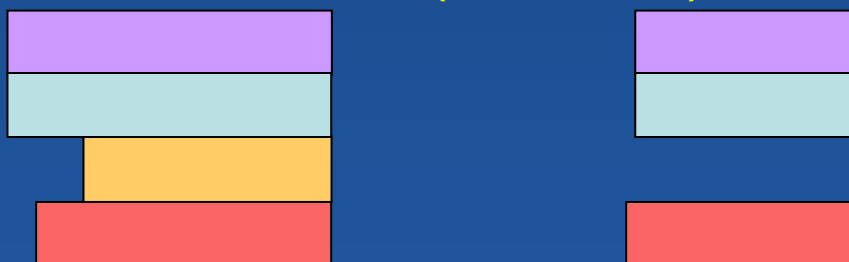


Figure 23



Excess Death Rates (per 100,000) - Lowell

Total EDR: 523/100,000

PHRT in Days: +11

NPI-Days: 59

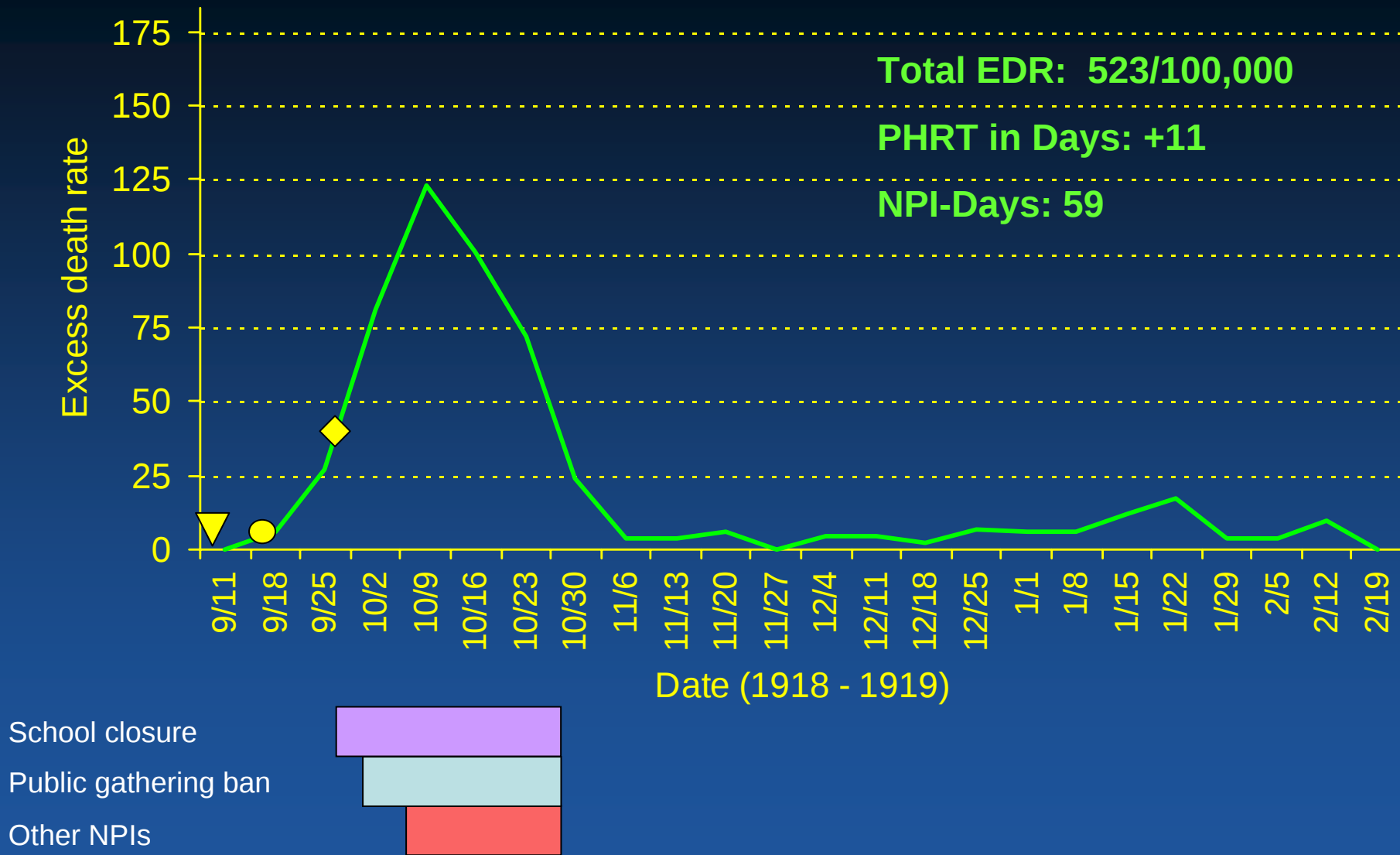


Figure 24

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Milwaukee

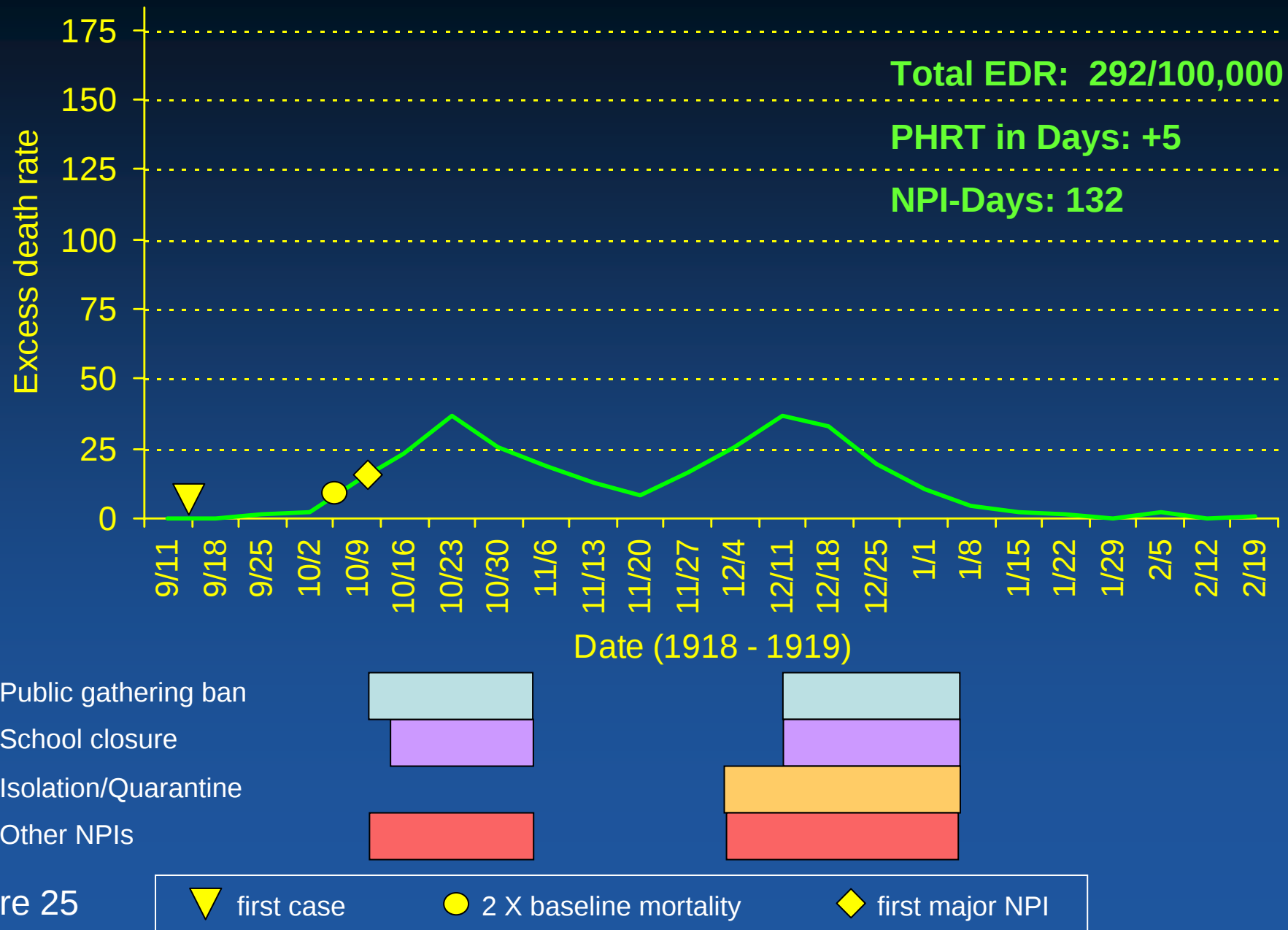


Figure 25

Excess Death Rates (per 100,000) - Minneapolis

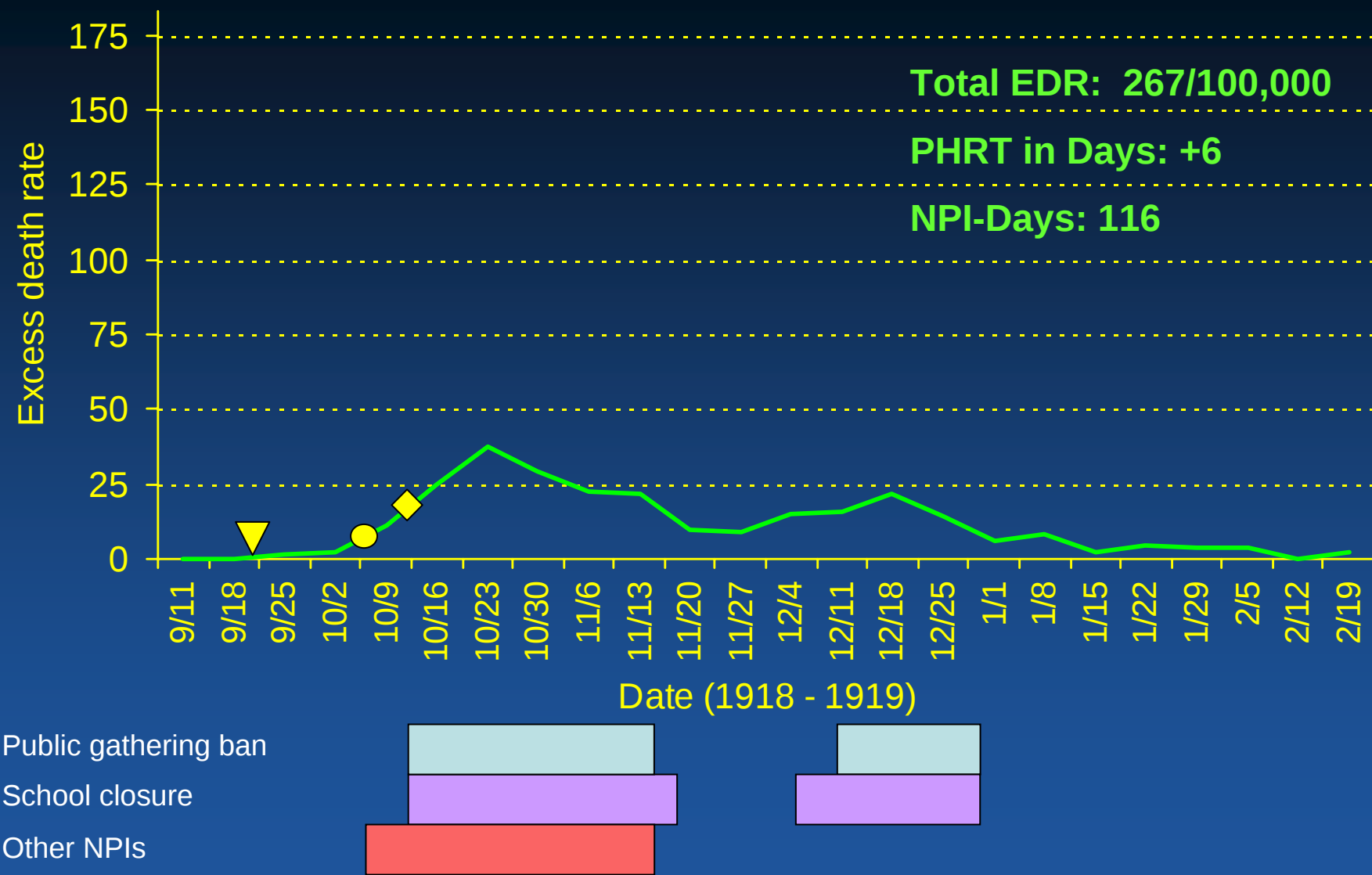


Figure 26

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Nashville

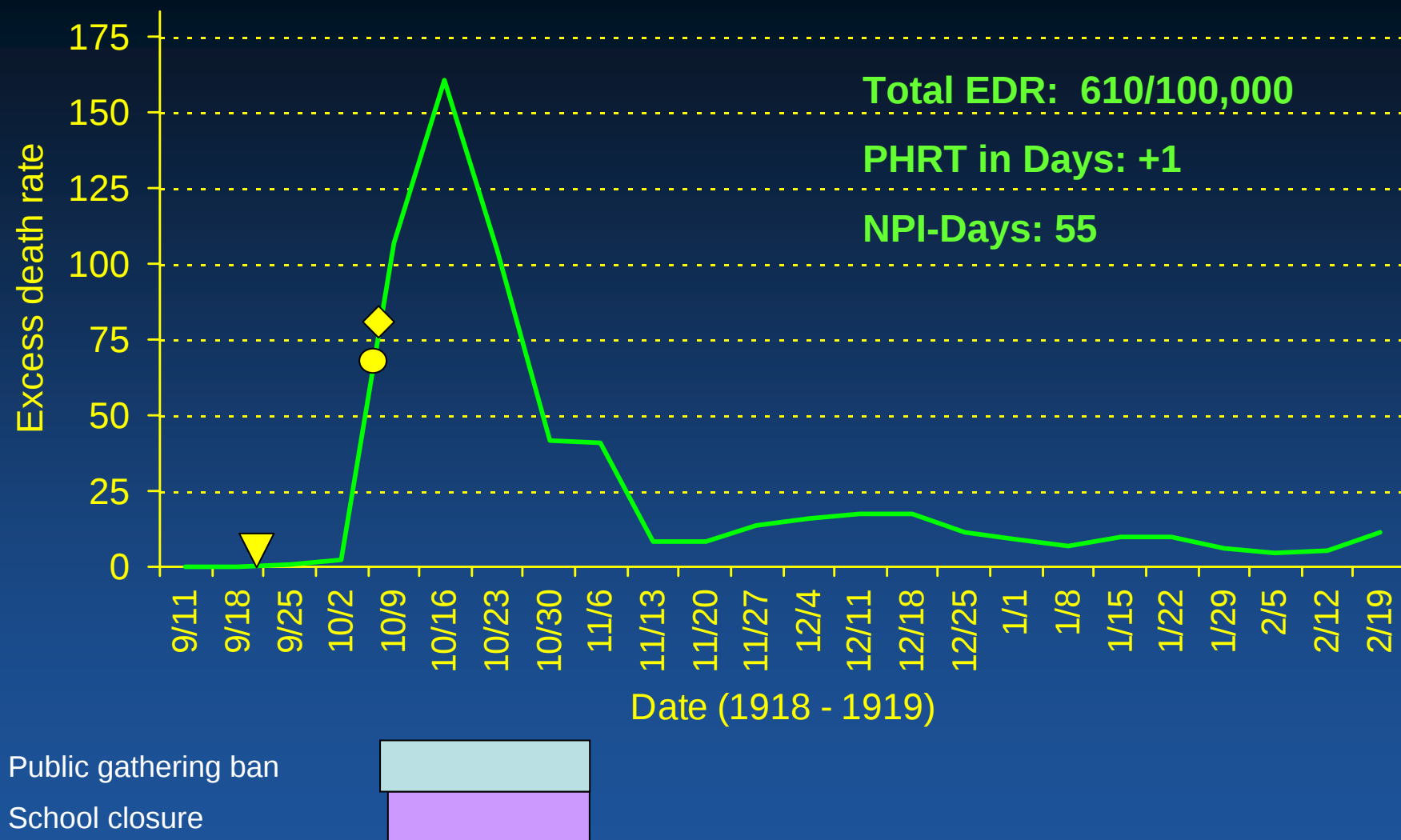


Figure 27

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - New Haven

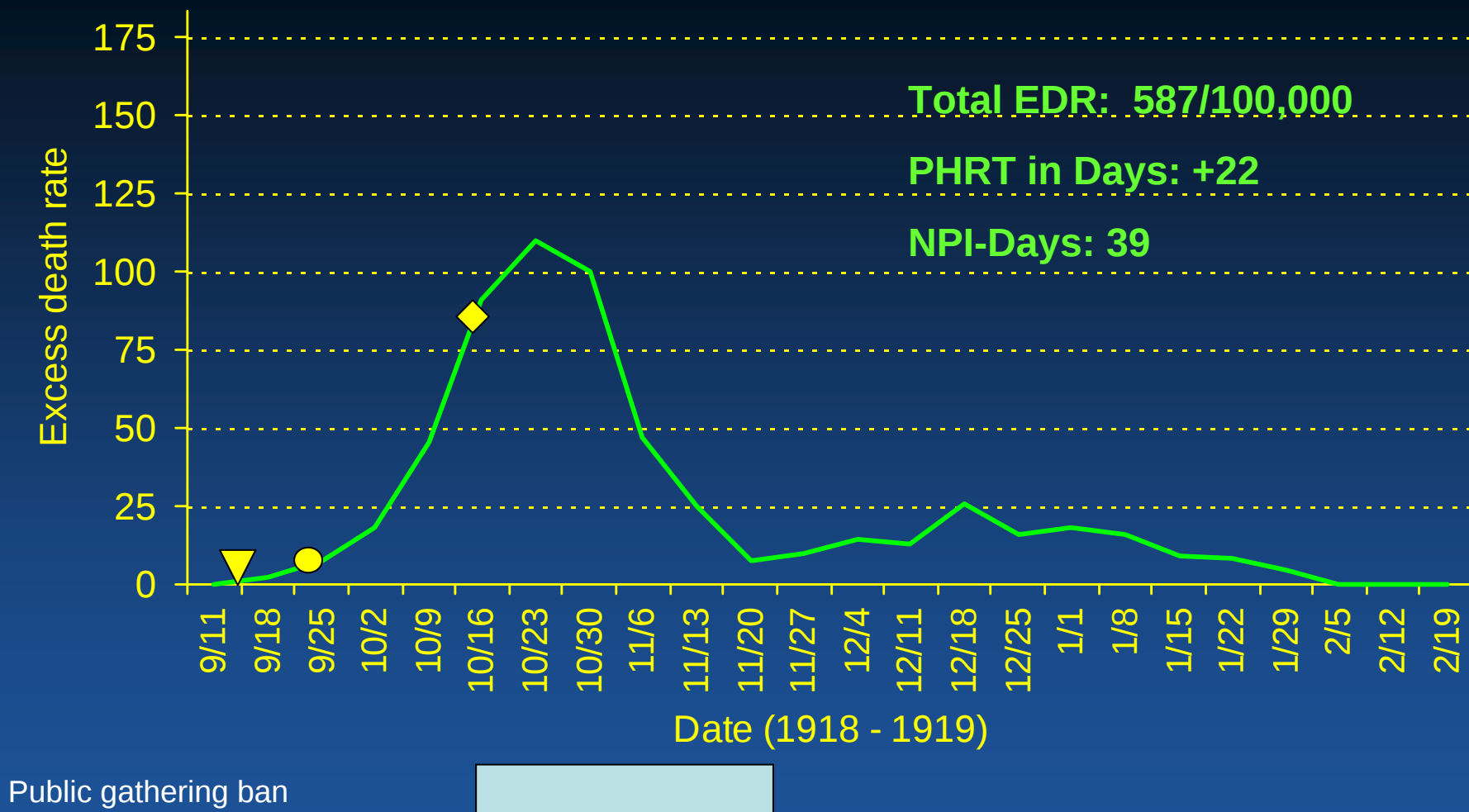


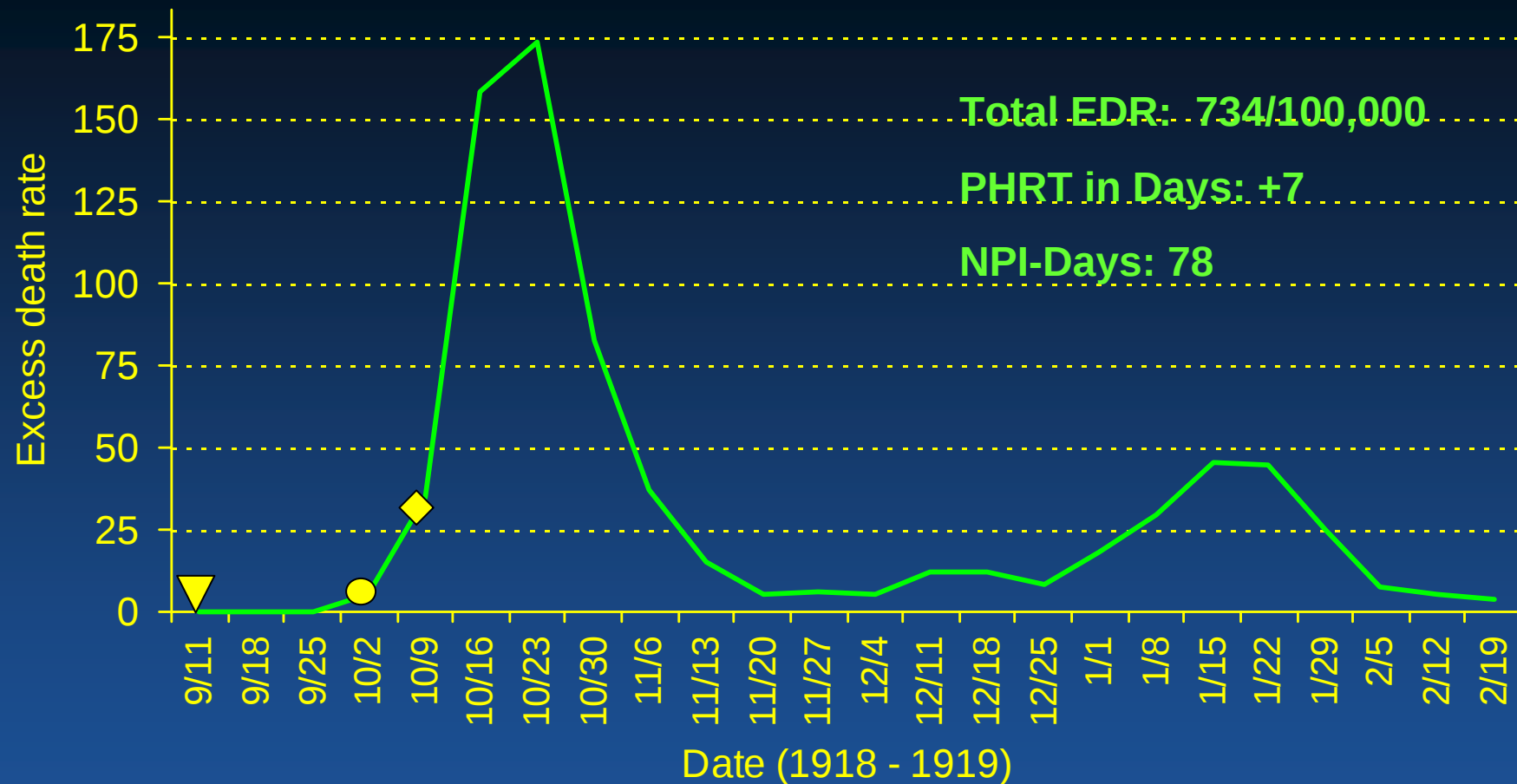
Figure 28

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - New Orleans



School closure

Public gathering ban

Other NPIs

▼ first case

● 2 X baseline mortality

◆ first major NPI

Figure 29

Excess Death Rates (per 100,000) - New York

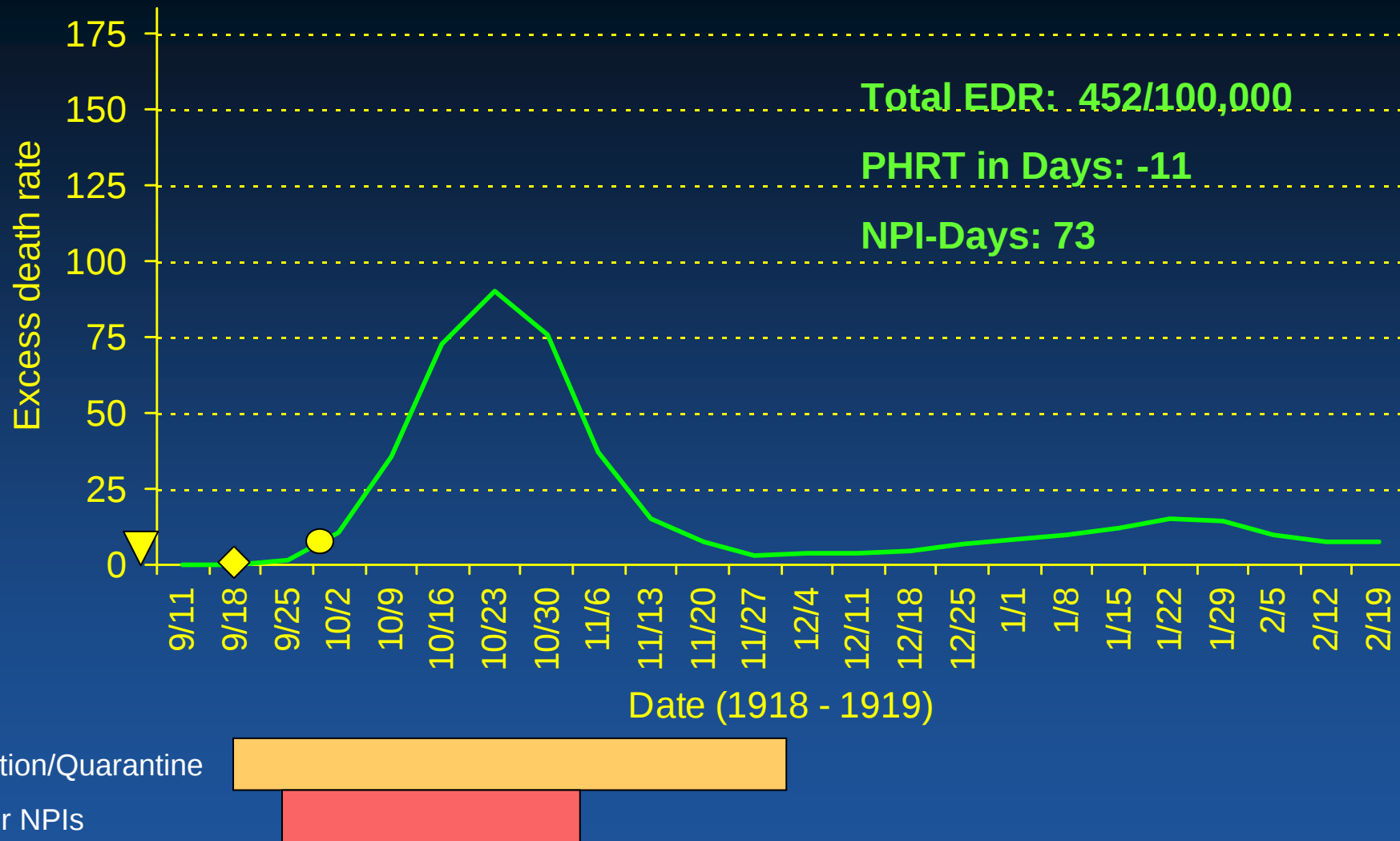


Figure 30

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Newark

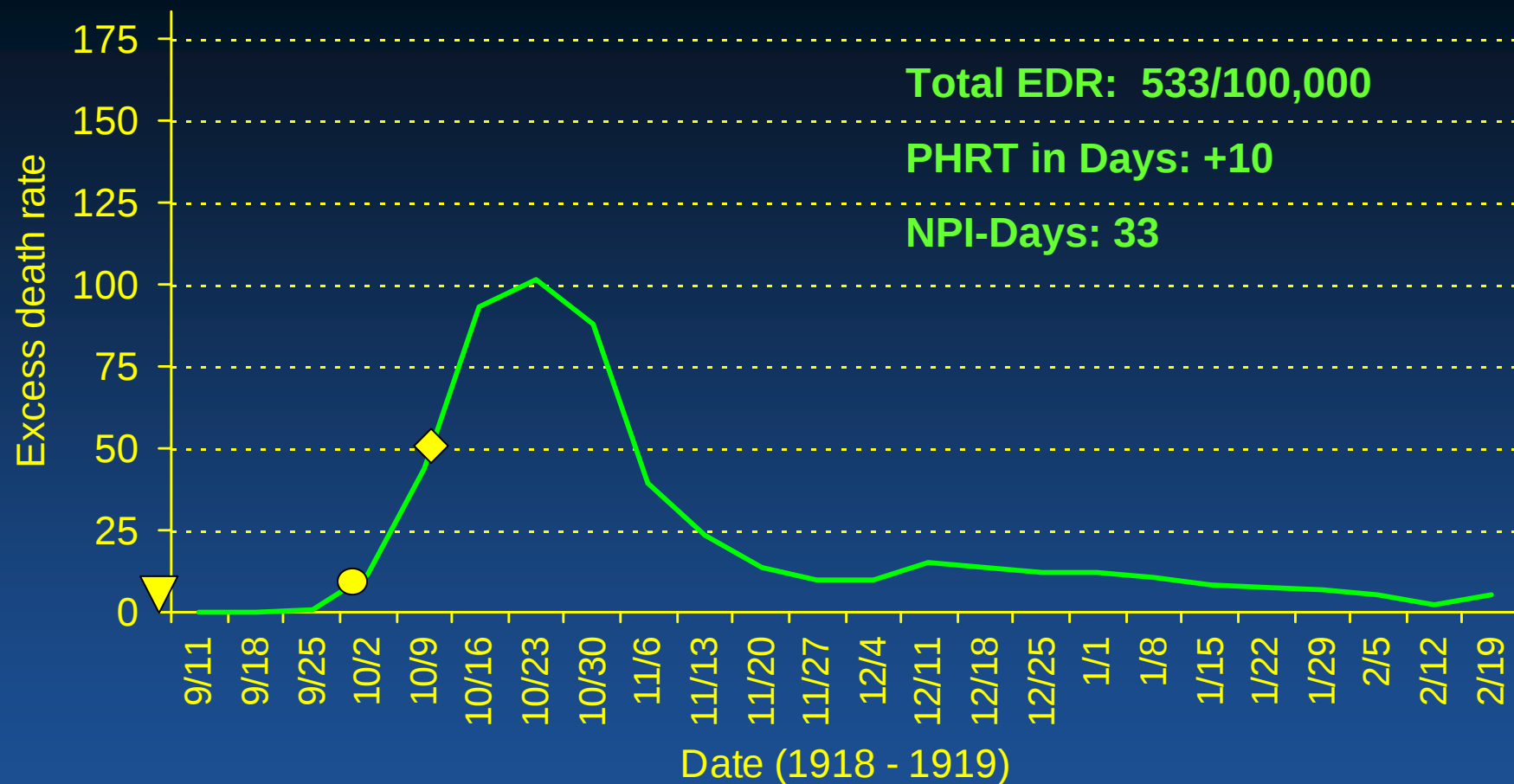


Figure 31



Excess Death Rates (per 100,000) - Oakland

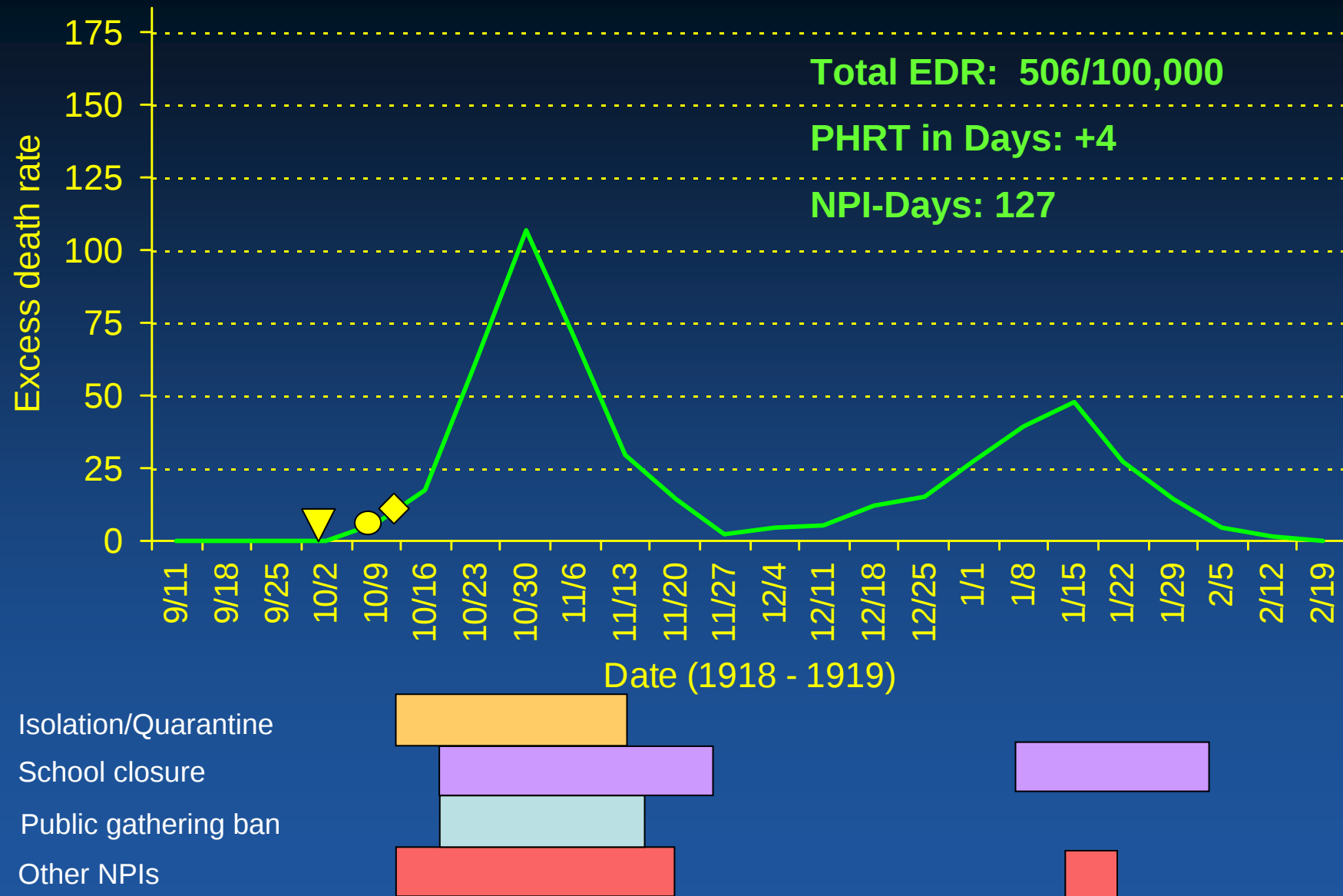


Figure 32

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Omaha

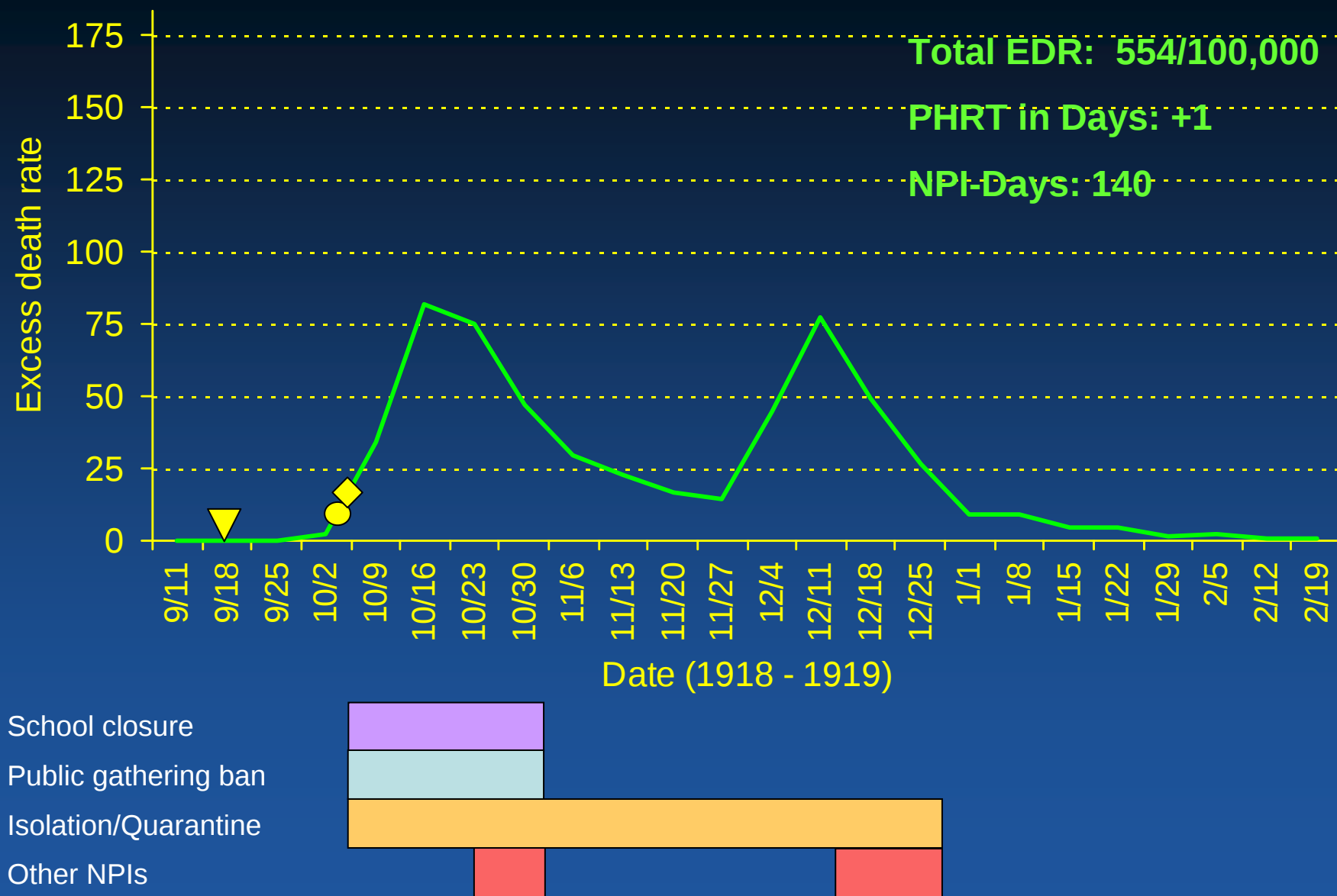


Figure 33



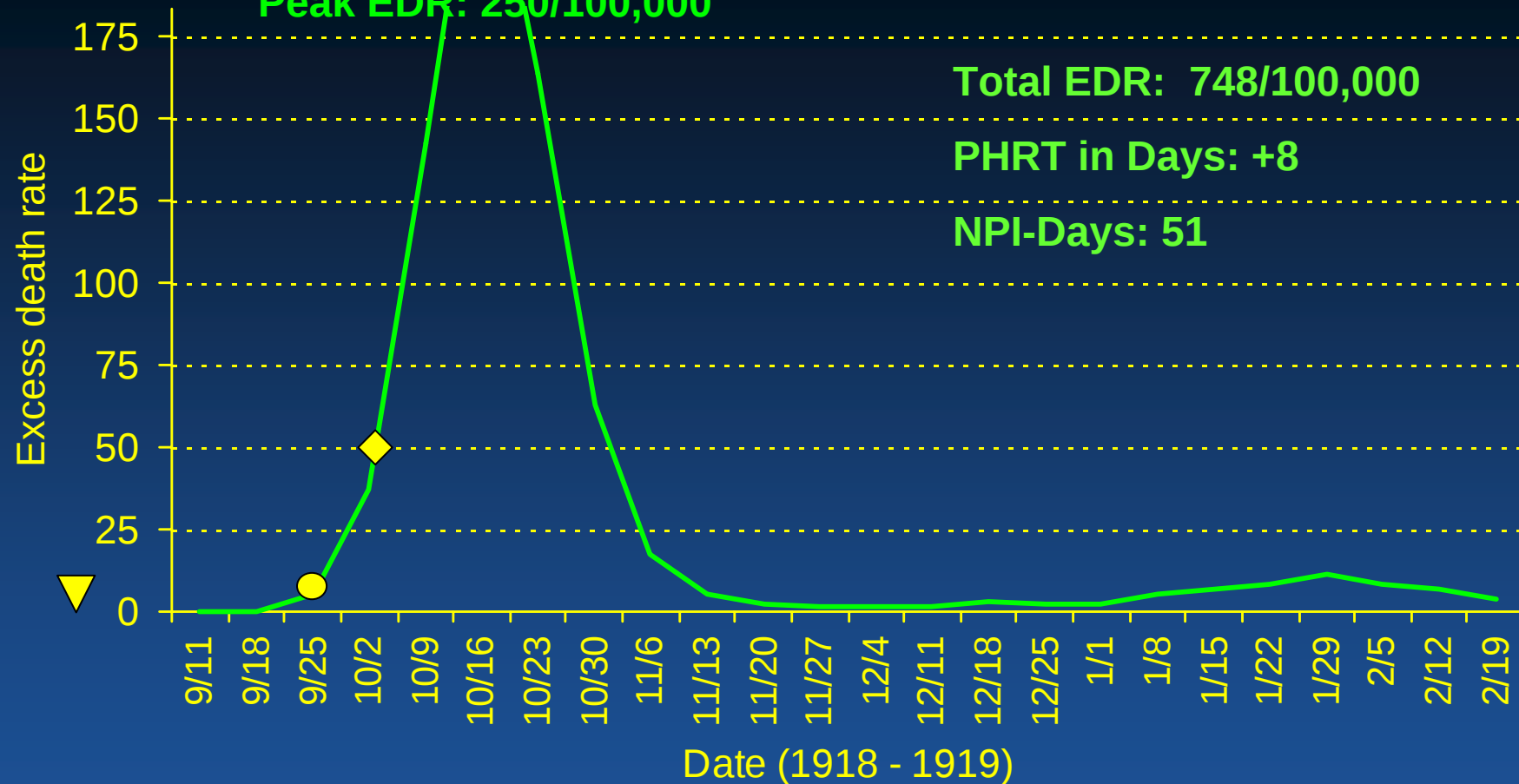
Excess Death Rates (per 100,000) - Philadelphia

Peak EDR: 250/100,000

Total EDR: 748/100,000

PHRT in Days: +8

NPI-Days: 51



Public gathering ban

School closure

Figure 34

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Pittsburgh

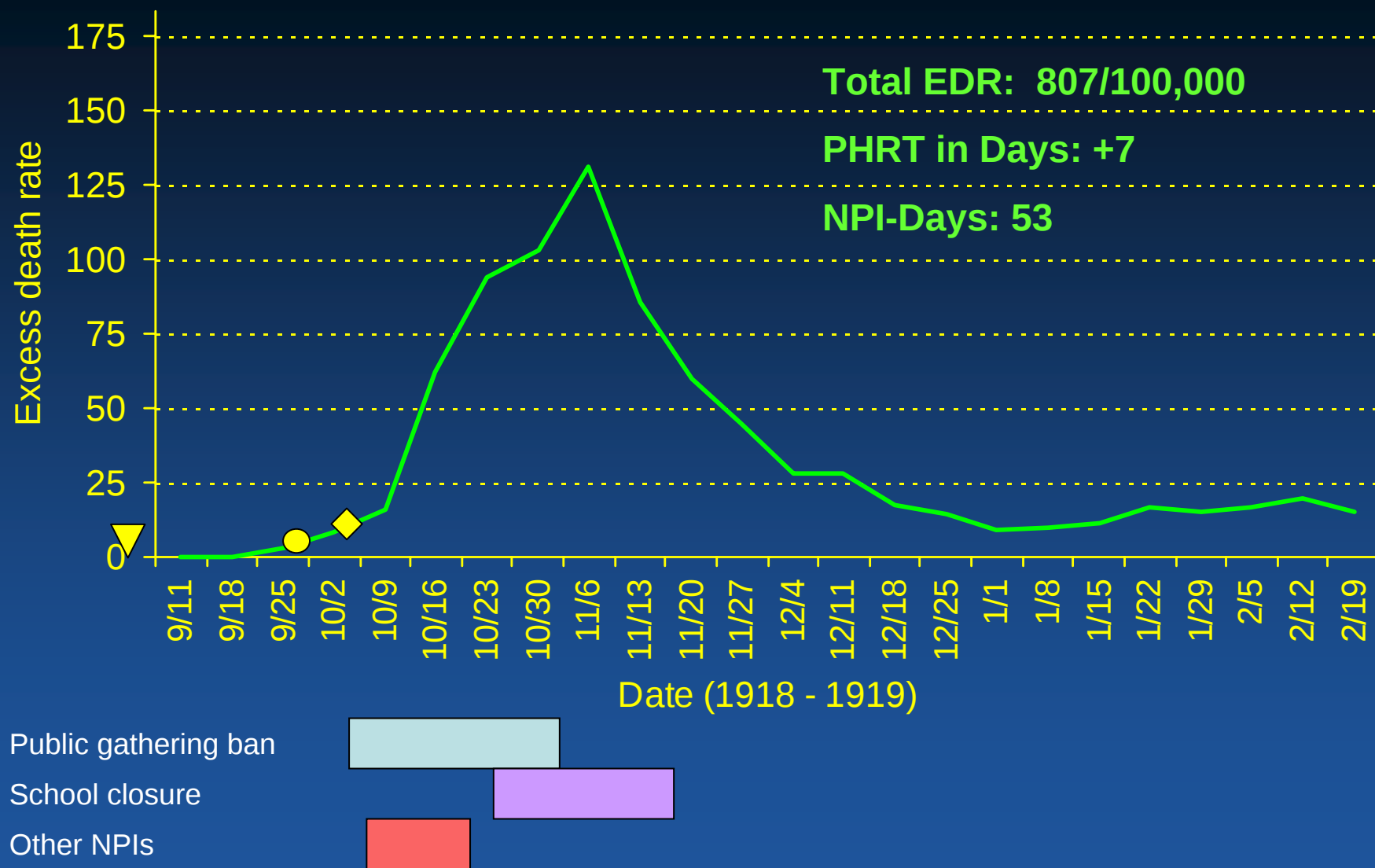


Figure 35



Excess Death Rates (per 100,000) - Portland

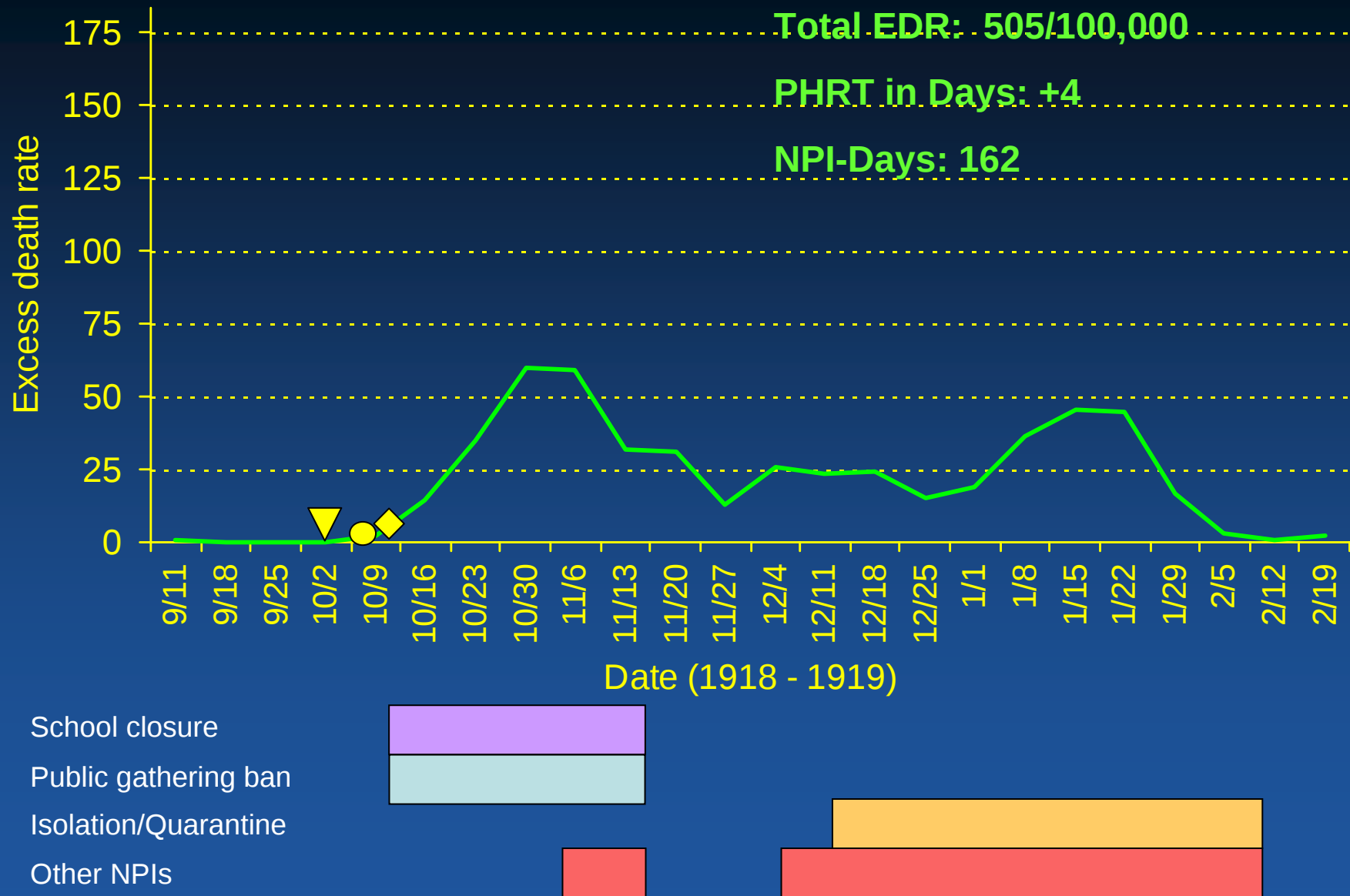
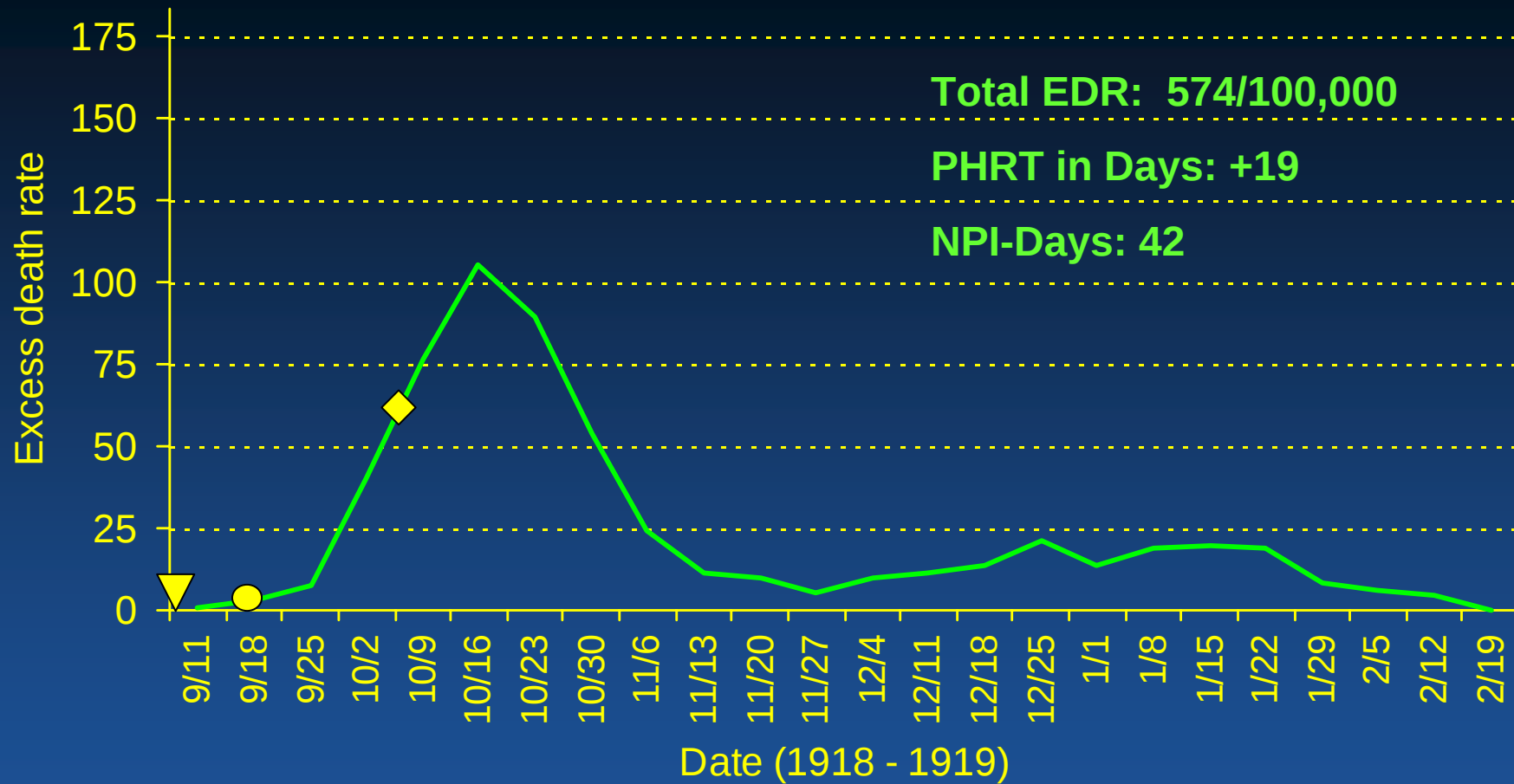


Figure 36



Excess Death Rates (per 100,000) - Providence



School closure

Public gathering ban

Other NPIs



first case



2 X baseline mortality



first major NPI

Figure 37

Excess Death Rates (per 100,000) - Richmond

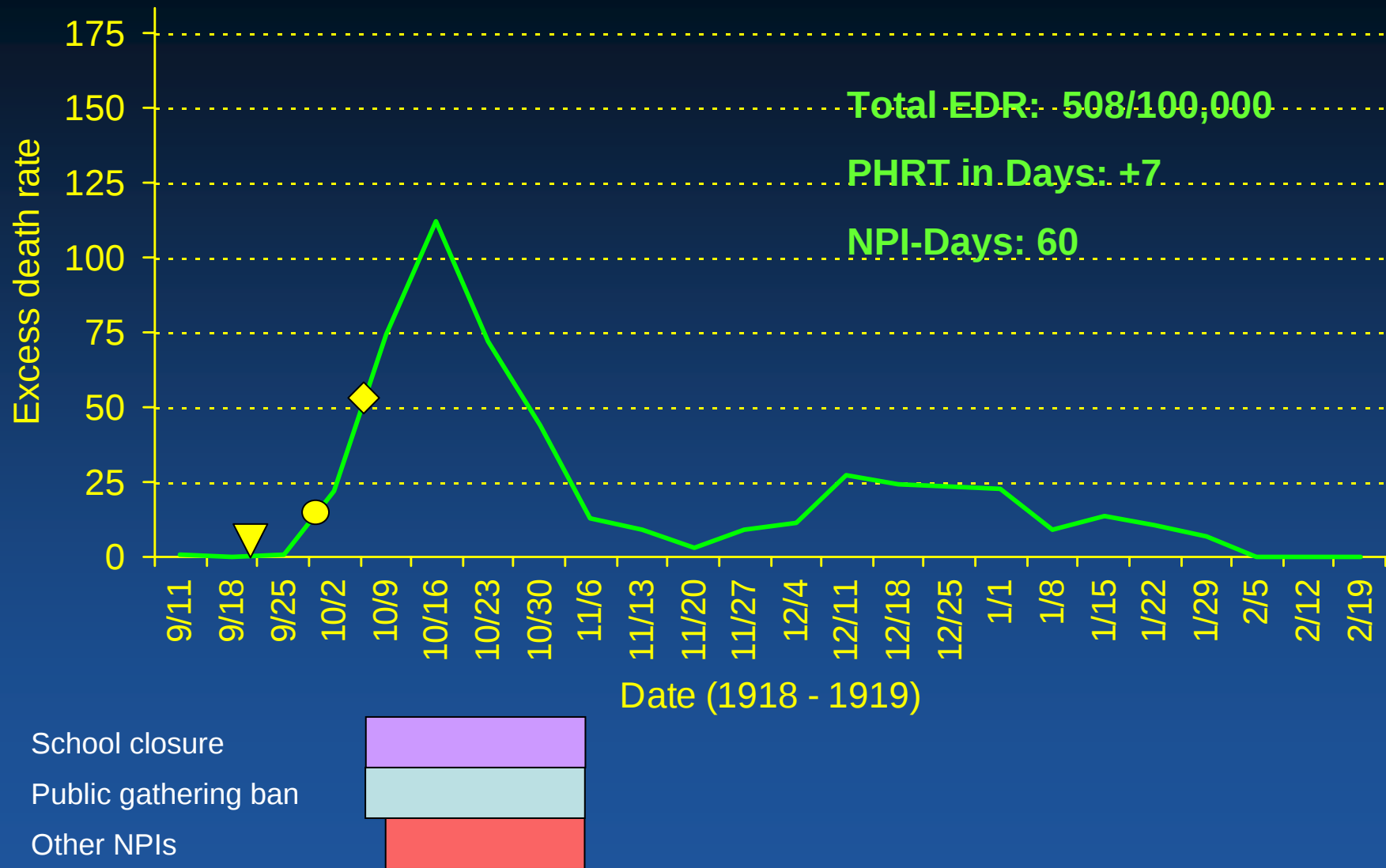


Figure 38

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Rochester

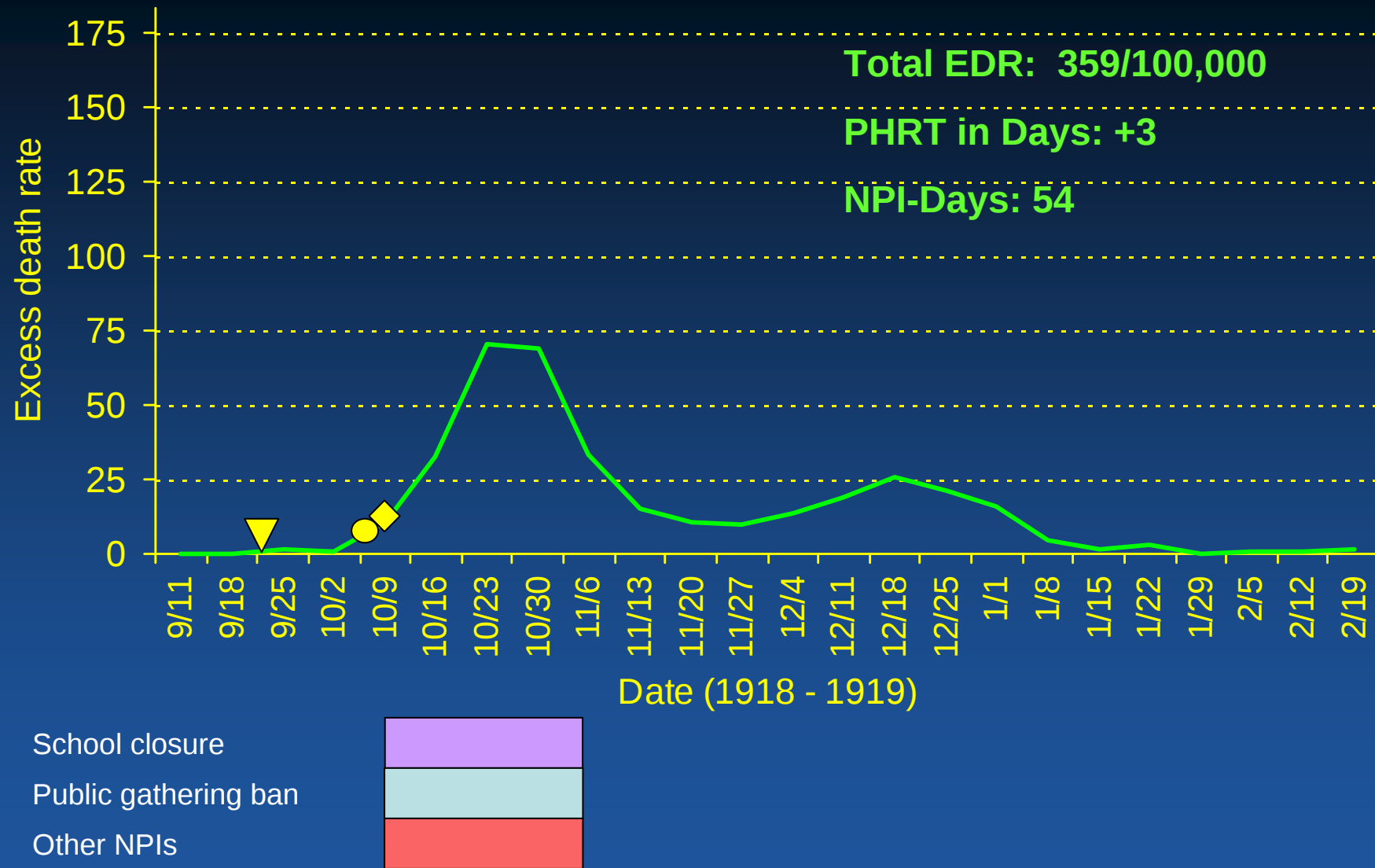


Figure 39

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - St. Louis

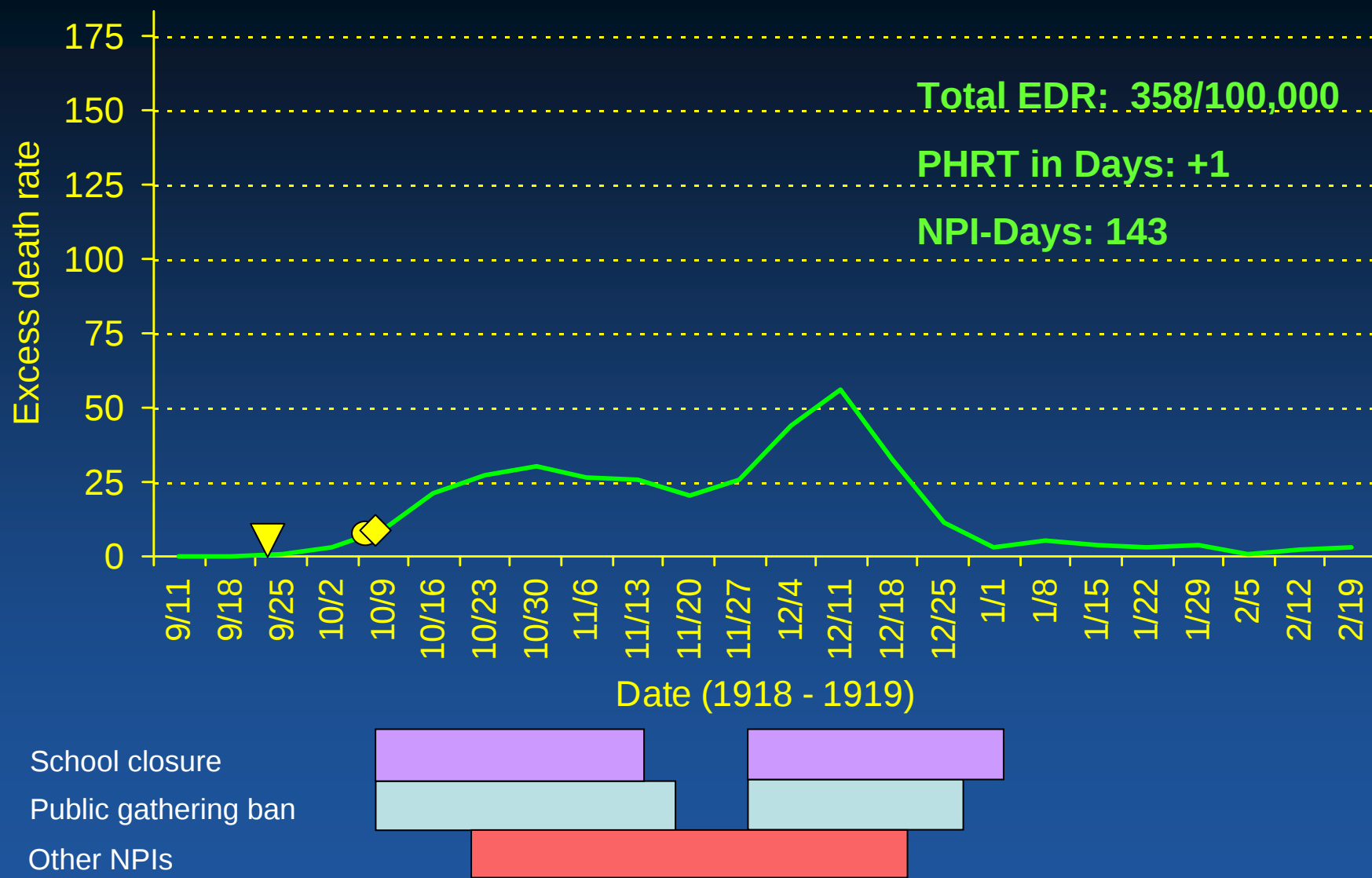


Figure 40

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - St. Paul

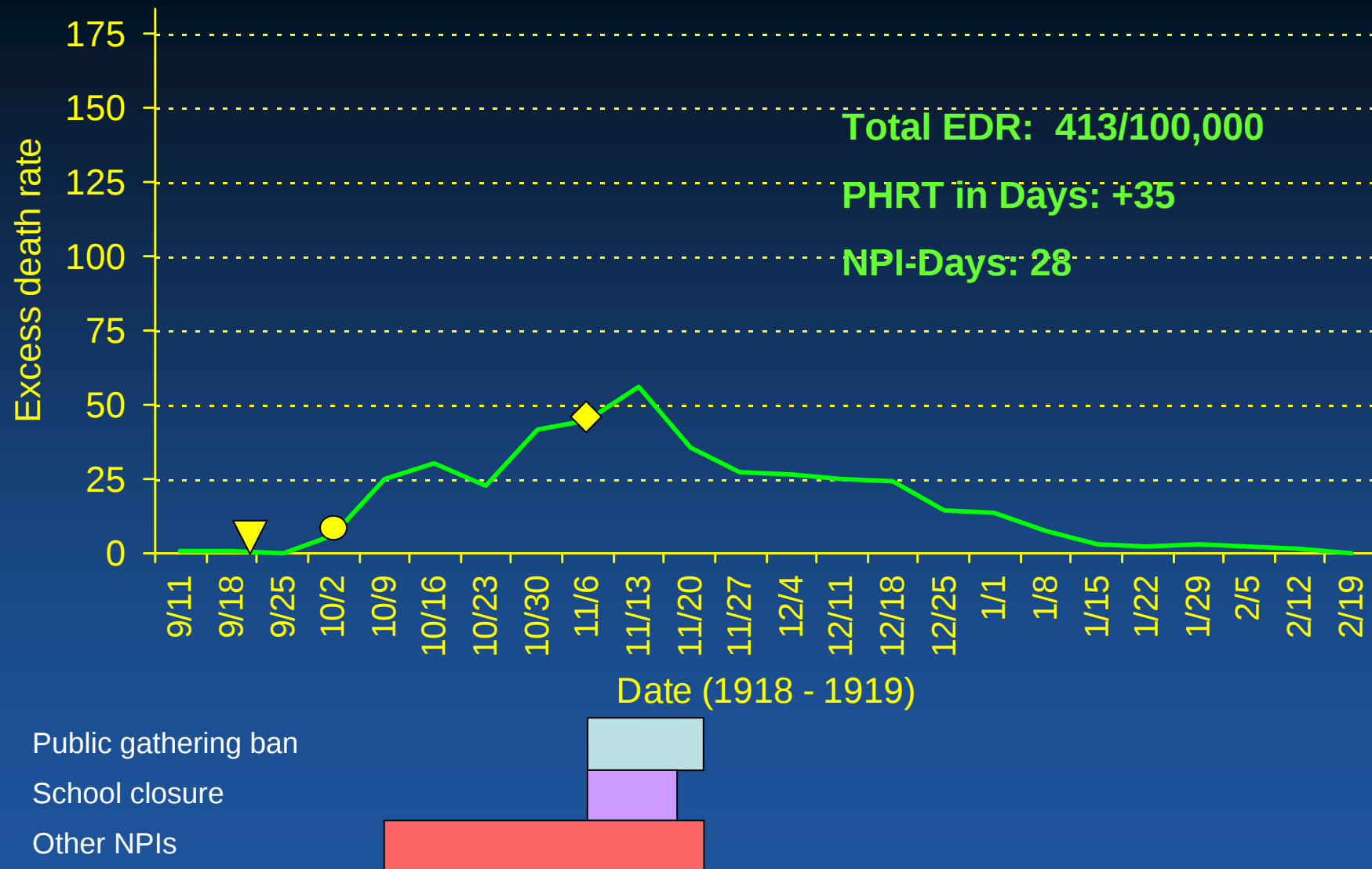


Figure 41



Excess Death Rates (per 100,000) - San Francisco

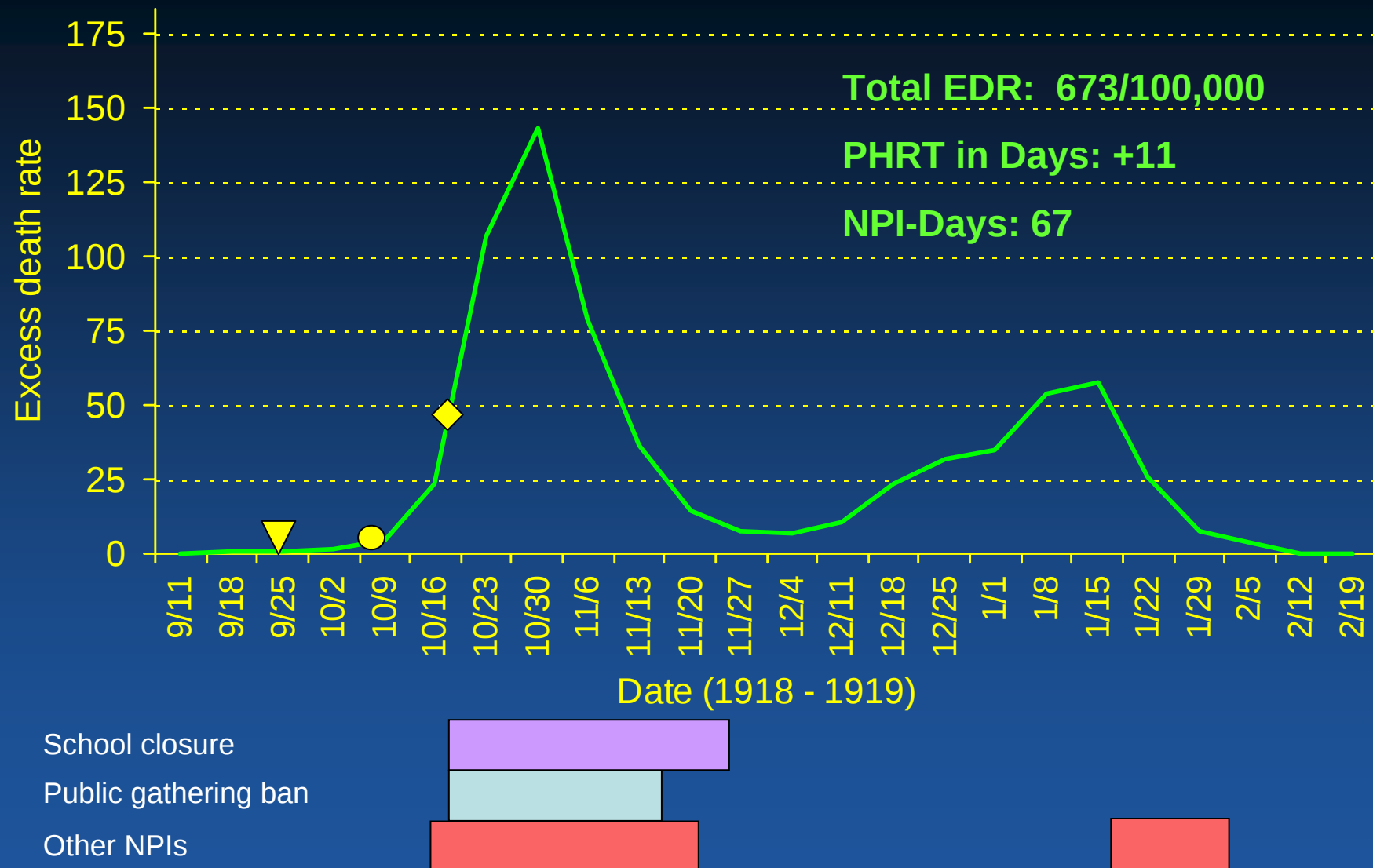


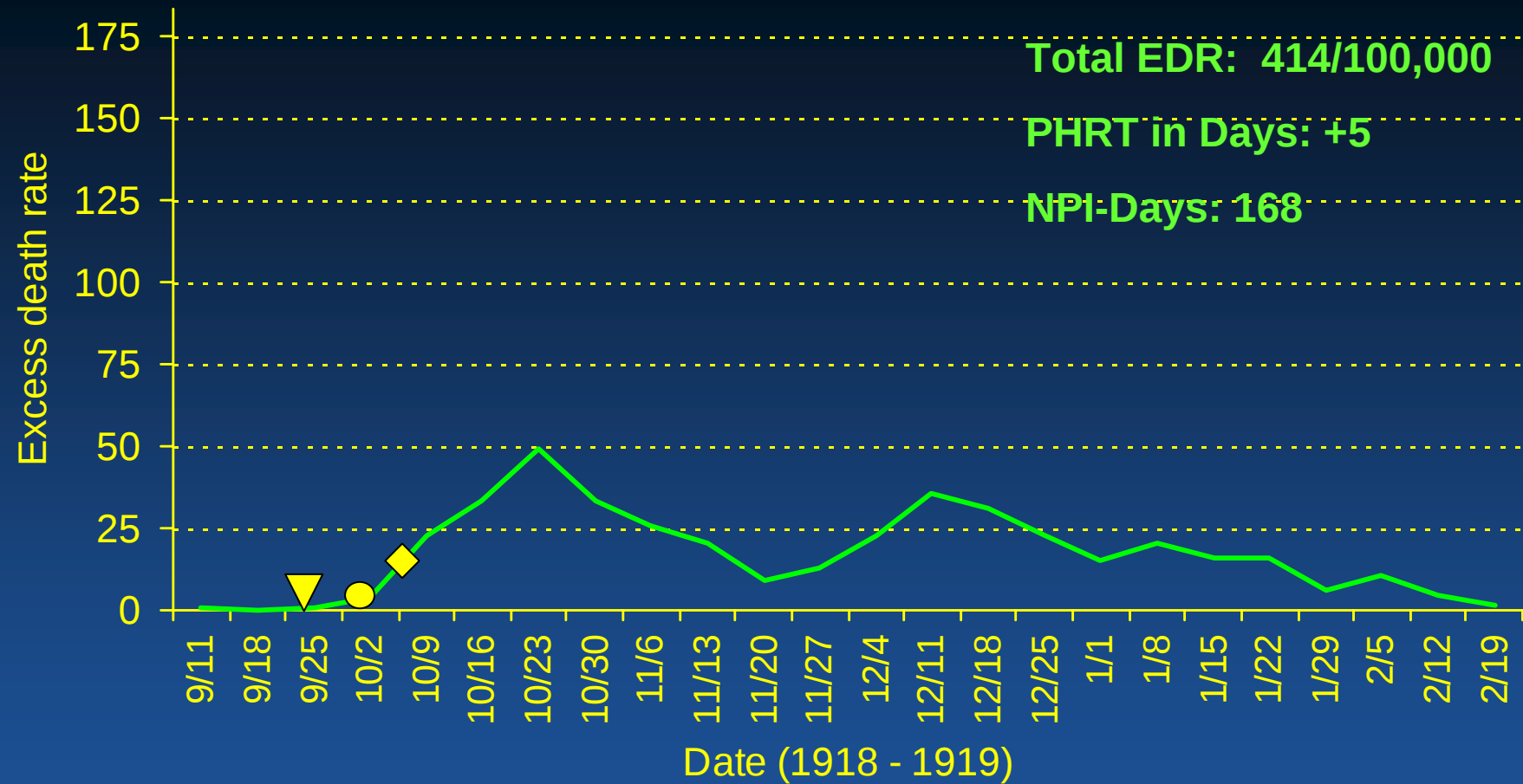
Figure 42

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Seattle



Public gathering ban
School closure
Isolation/Quarantine
Other NPIs

▼ first case

● 2 X baseline mortality

◆ first major NPI

Figure 43

Excess Death Rates (per 100,000) - Spokane

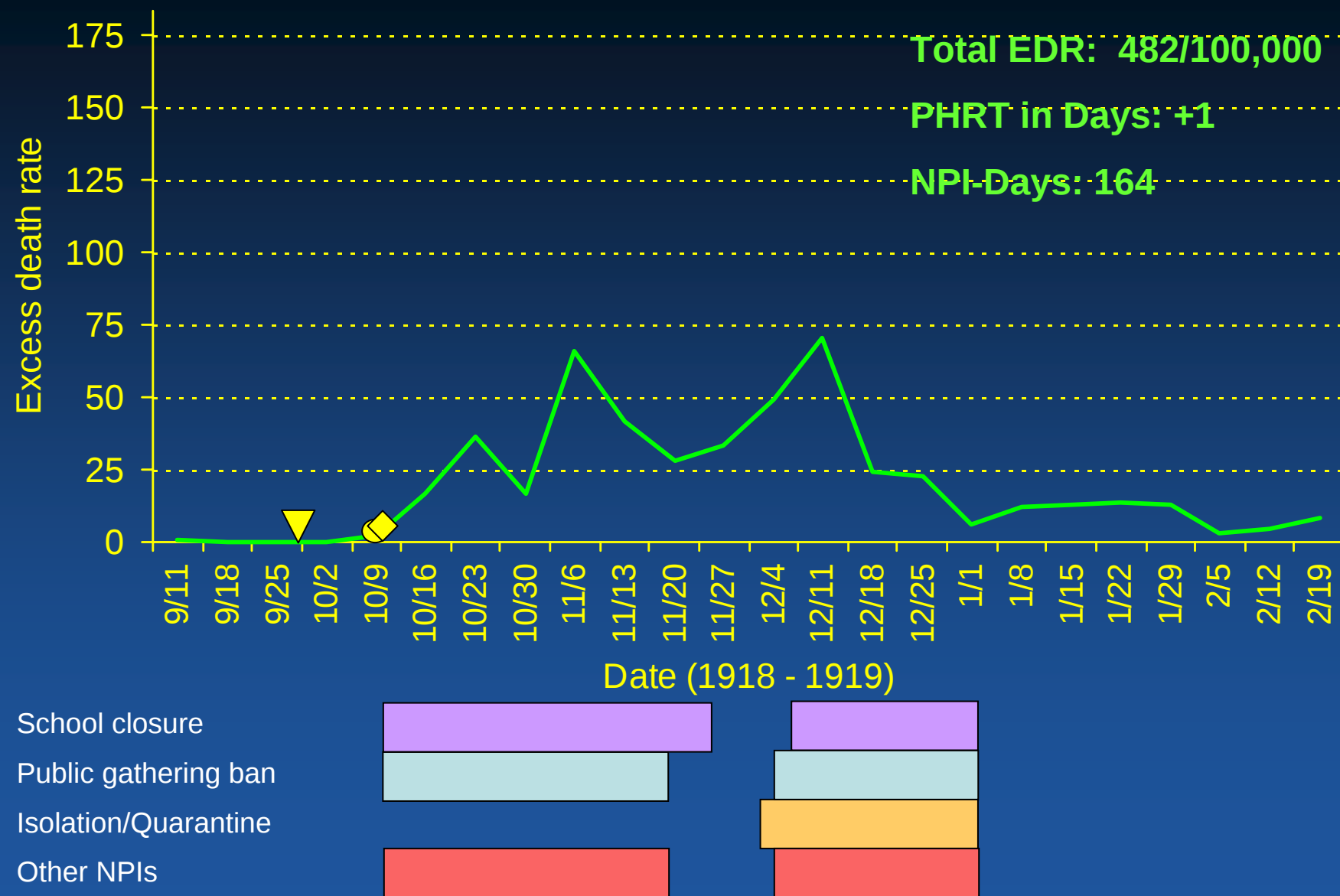
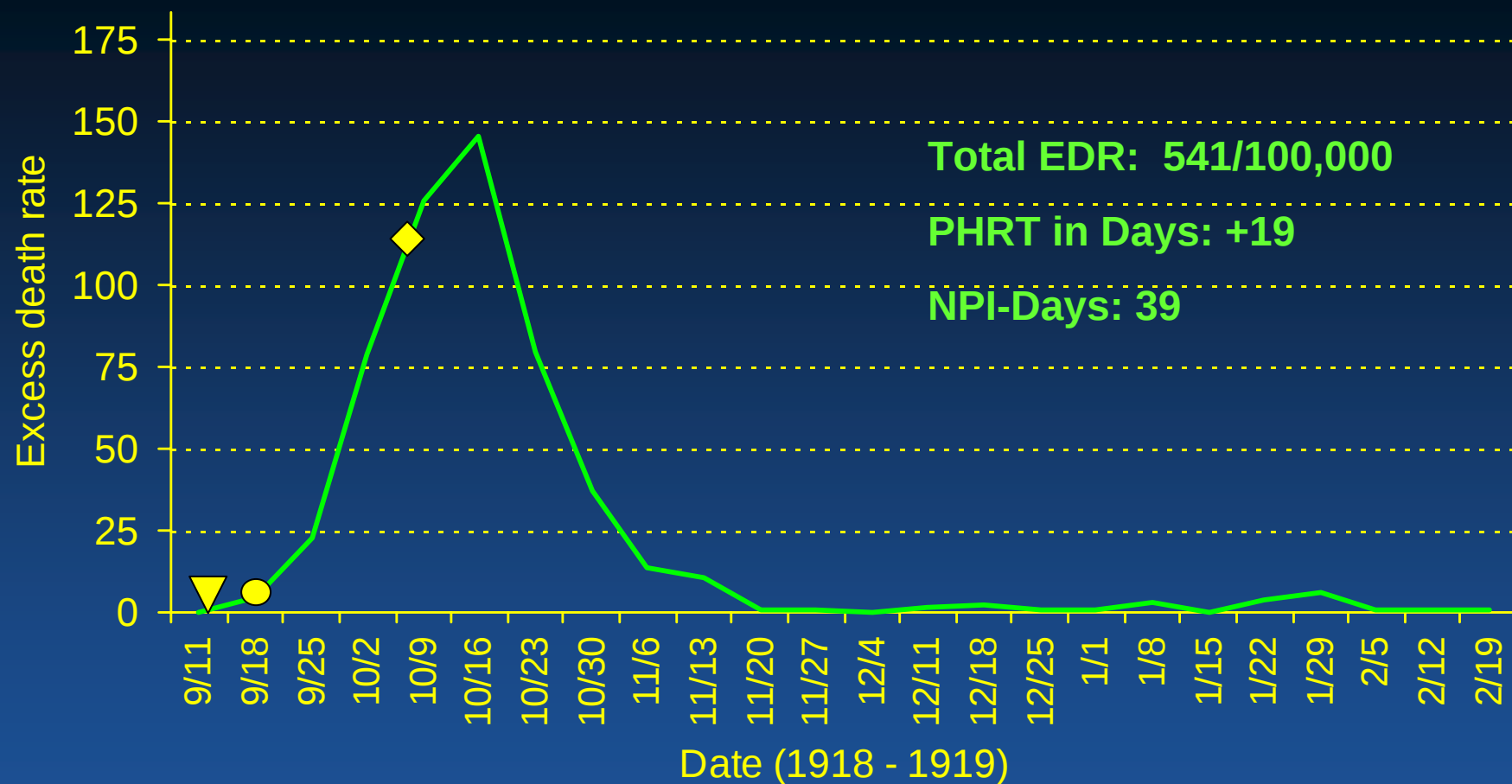


Figure 44



Excess Death Rates (per 100,000) - Syracuse



School closure

Public gathering ban

Other NPIs

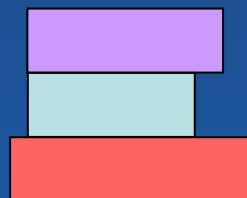


Figure 45

▼ first case

● 2 X baseline mortality

◆ first major NPI

Excess Death Rates (per 100,000) - Toledo

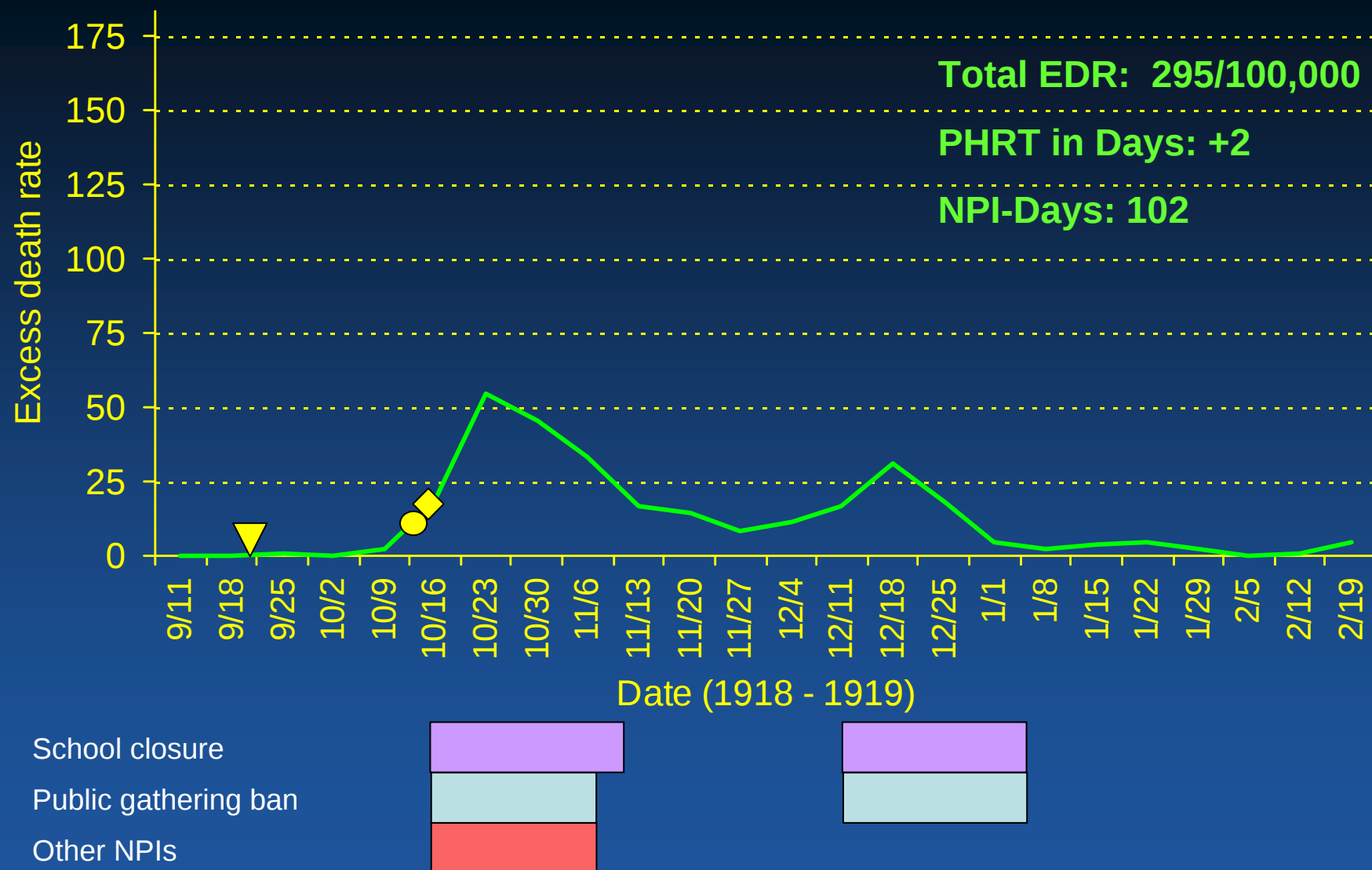


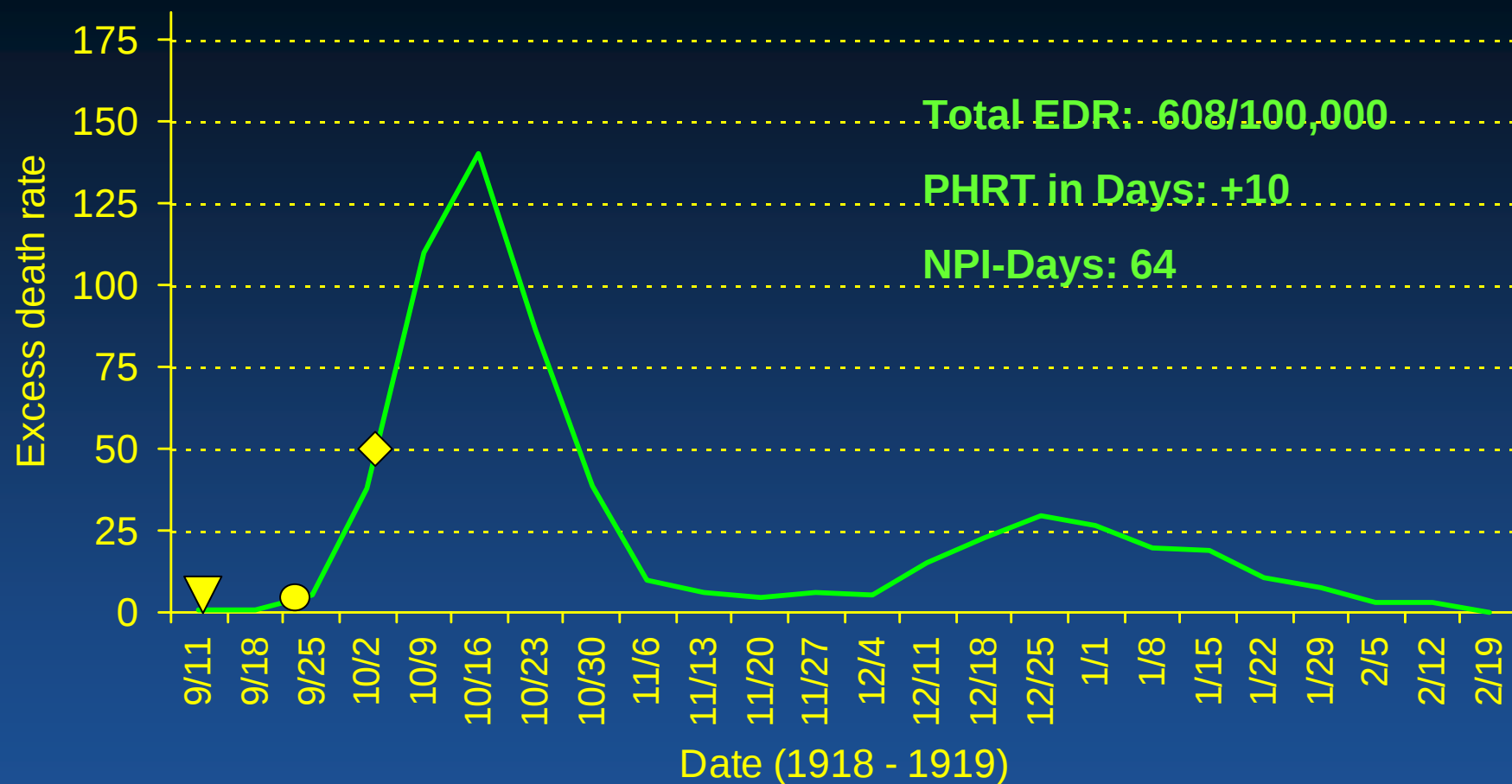
Figure 46

first case

2 X baseline mortality

first major NPI

Excess Death Rates (per 100,000) - Washington



School closure

Public gathering ban

Other NPIs



first case



2 X baseline mortality



first major NPI

Figure 47

Excess Death Rates (per 100,000) - Worcester

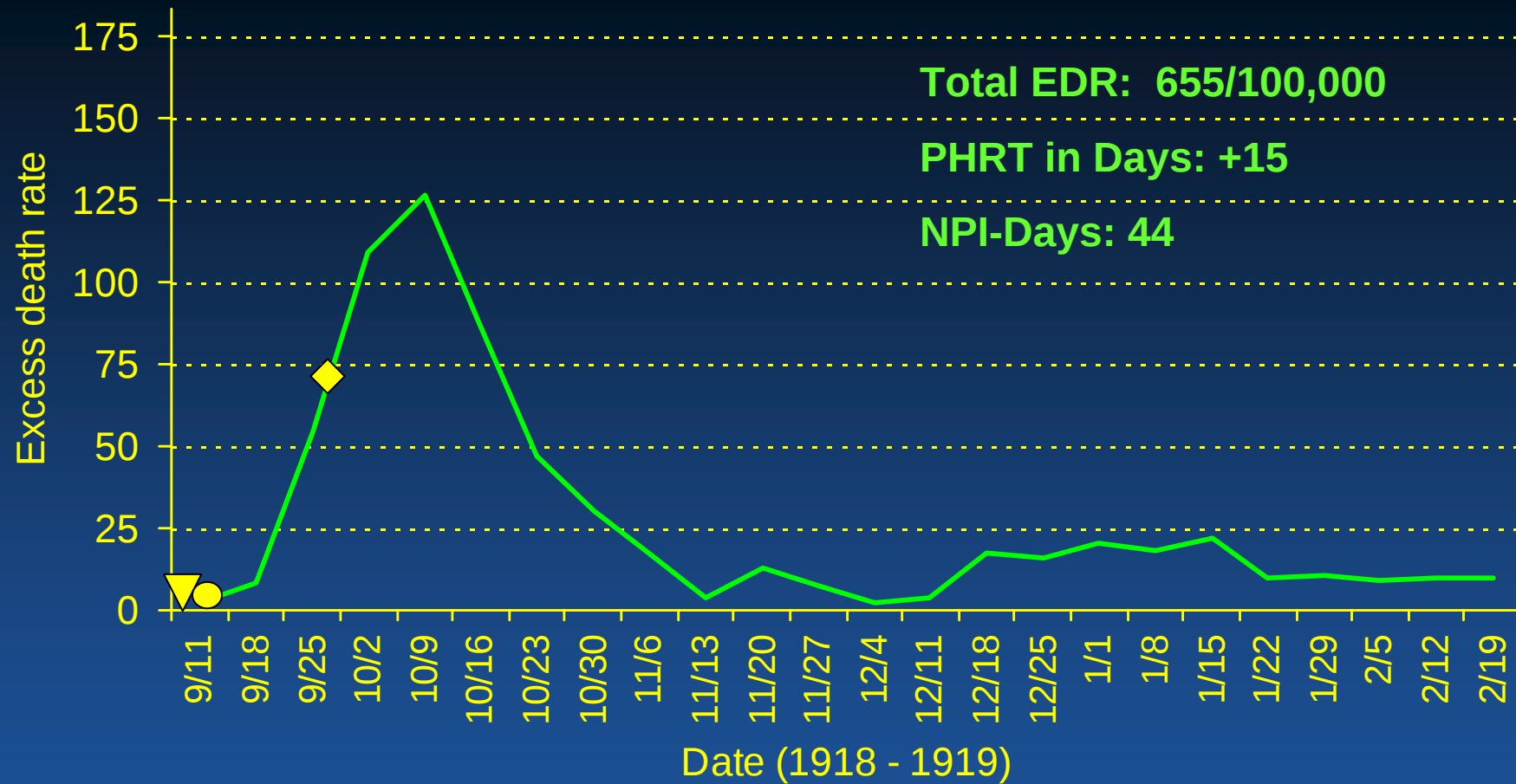


Figure 48

first case

2 X baseline mortality

first major NPI

Table detailing each city's implementation of "Other NPIs"

Albany	Street cars required to be well ventilated.
Baltimore	Business hours restricted; mask use required for dentists; street cars required to be well ventilated.
Birmingham	Coal mines close; mask use recommended; public health risk communications in movie theaters.
Boston	Additional street cars put into service to prevent crowding; business hours restricted and staggered; public health risk communications in businesses; influenza prevention circular issued.
Buffalo	Mask use required for health care professionals; mask use recommended. For general public; public health risk communication distributed to schoolchildren.
Cambridge	None recorded.
Chicago	Public health risk communications posted in public transportation; public places required to be well ventilated.
Cincinnati	Public health risk communications in movie theaters; mask use recommended for barbers and elevator operators; business hours restricted and staggered; business owners required to prevent crowding in their shops; street cars required to be well ventilated.
Cleveland	Public health risk communications in public transportation; crowding prohibited in elevators and street cars; mask use required for physicians, dentists, and barbers, and for all while in court; public health risk communications (films) shown outdoors; business hours restricted.
Columbus	Business hours restricted.
Dayton	None recorded.
Denver	Business hours staggered; crowding prohibited in elevators and street cars; public health risk communications in movie theaters and businesses; masks required.
Fall River	Public health risk communications distributed in different languages.
Grand Rapids	Public health risk communications in movie theaters; crowding prohibited in public places.
Indianapolis	Mask use voluntary, then compulsory; crowding prohibited in meetings; business hours staggered; schools required to be well ventilated.
Kansas City, MO	Crowding prohibited in street cars; business hours restricted; mask use recommended for those serving the public.
Los Angeles	Mask use recommended for those care-givers and for general public when in crowds, and compulsory for elections officers; crowds not allowed to watch shooting of films; business hours staggered; public health risk communications to areas where influenza is reported and in public transportation.
Louisville	Business hours restricted; merchants prohibited from advertising sales; street car capacity limited.
Lowell	Business hours restricted.
Milwaukee	Public health risk communication distributed to schoolchildren, church-goers (printed in several languages); business owners required to prevent crowding in their shops; alternate seating in theaters; additional street cars put into service to prevent crowding; mask use required at public dances.

Figure 49

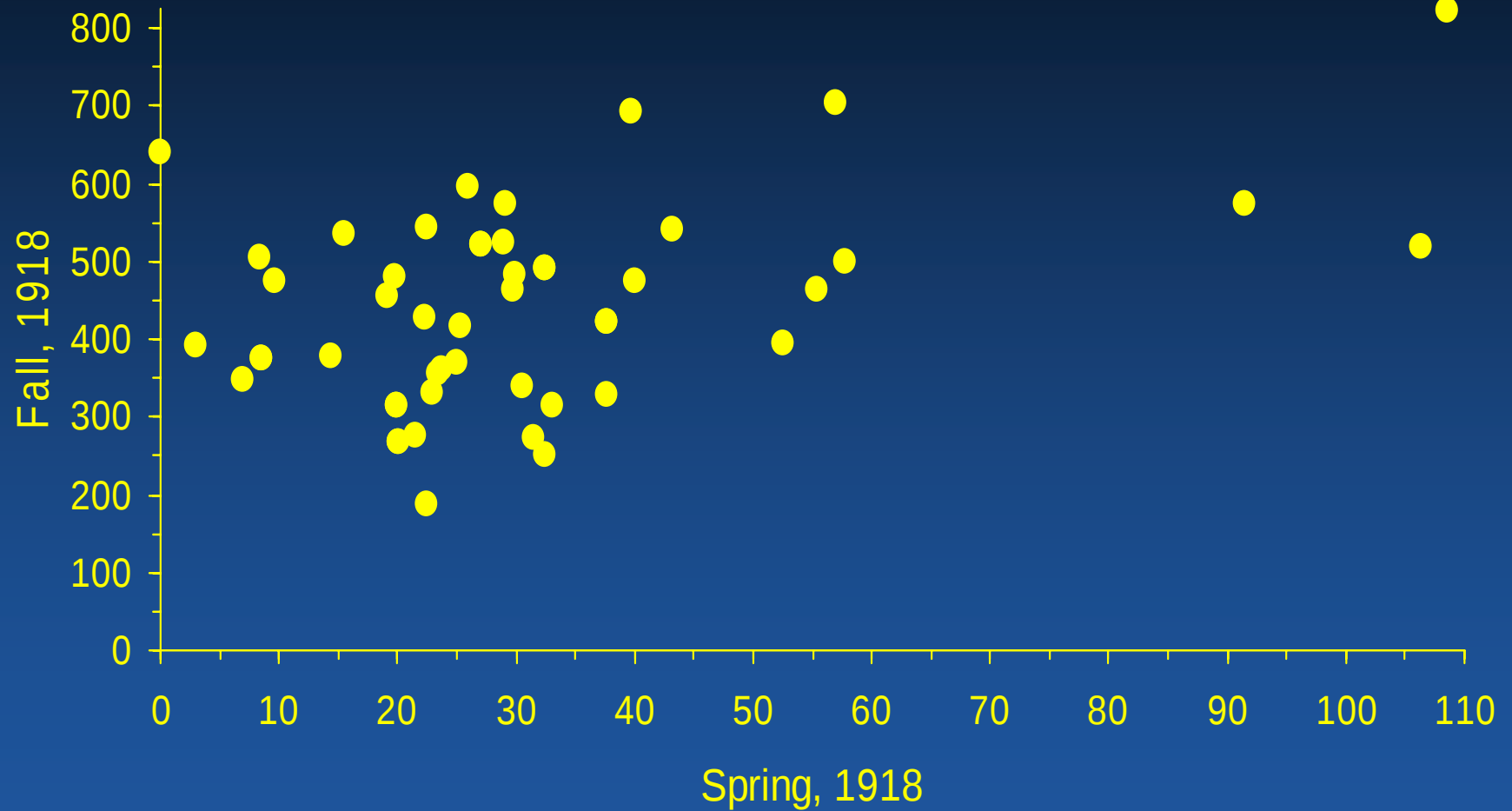
Table detailing each city's implementation of "Other NPIs" (cont.)

Minneapolis	Mask use recommended for those care-givers; street cars required to be well ventilated and un-crowded; business hours staggered; crowding prohibited in churches and saloons.
Nashville	None recorded.
New Haven	None recorded.
New Orleans	Crowding prohibited in street cars; business hours staggered; merchants prohibited from advertising sales.
New York	Public health risk communications (signs) posted across city; business hours staggered.
Newark, NJ	Public health risk communication mailed to every household and distributed to schoolchildren; masks required for barbers while with customers; businesses required to be well ventilated.
Oakland, CA	Public health risk communications distributed in theaters; mask use required in department of health office and by store clerks; mask use then made mandatory for the general public.
Omaha	Business hours restricted; crowding prohibited on street cars and in theaters.
Philadelphia	None recorded.
Pittsburgh	Public health risk communication distributed to schoolchildren.
Portland, OR	Business hours staggered; crowding prohibited in theaters; street cars required to be well ventilated; mask use recommended for general public.
Providence	Street cars required to be well ventilated and additional street cars put into service; business hours staggered.
Richmond	Public health risk communications posted in classrooms; mask use recommended.
Rochester, NY	Business hours staggered.
St. Louis	Business hours restricted; crowding prohibited on street cars and in restaurants and elevators.
St. Paul	Street cars required to be well ventilated, and crowding prohibited; merchants prohibited from advertising sales.
San Francisco	Recommended that street cars be well ventilated; mask use recommended and then required.
Seattle	Street cars and theaters required to be well ventilated; mask use required for barbers and dentists, and then required for general public; business hours restricted.
Spokane	Crowding prohibited in street cars, and must be well ventilated; masks required when indoors for general public.
Syracuse	Public health risk communications shown in movies and theaters, and distributed to general public.
Toledo	Business hours restricted; street cars, factories, and shops required to be well ventilated.
Washington, DC	Public health risk communications (posters) placed around city; business hours staggered; street cars required to be well ventilated.

Figure 49 cont.

Excess Death Rates: Spring, 1918 by Fall, 1918

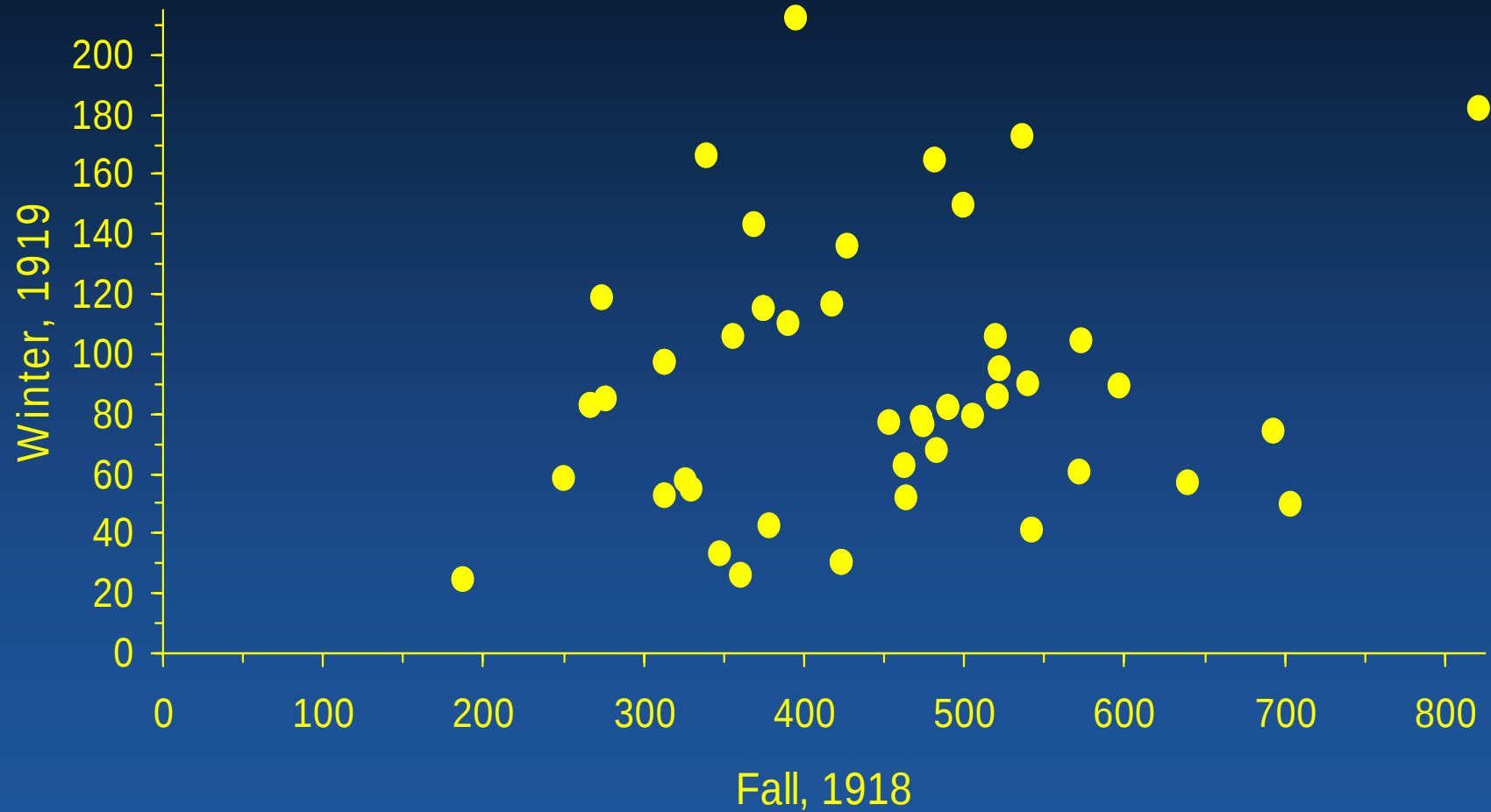
43 Study Cities



Spearman's $r = 0.21$ $p > .05$

Figure 50

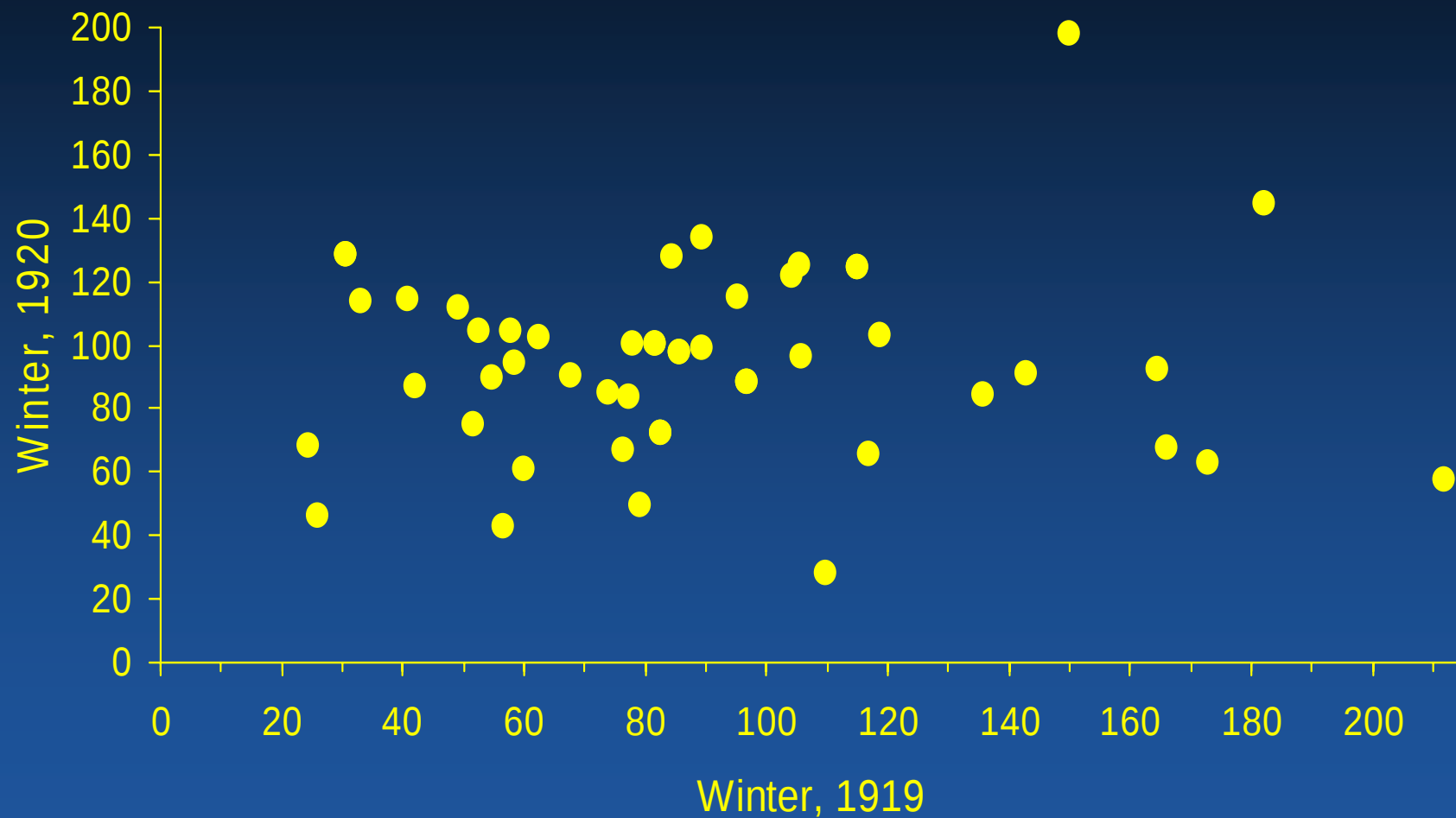
Excess Death Rates: Fall, 1918 by Winter, 1919 43 Study Cities



Spearman's $r = 0.16$ $p > .05$

Figure 51

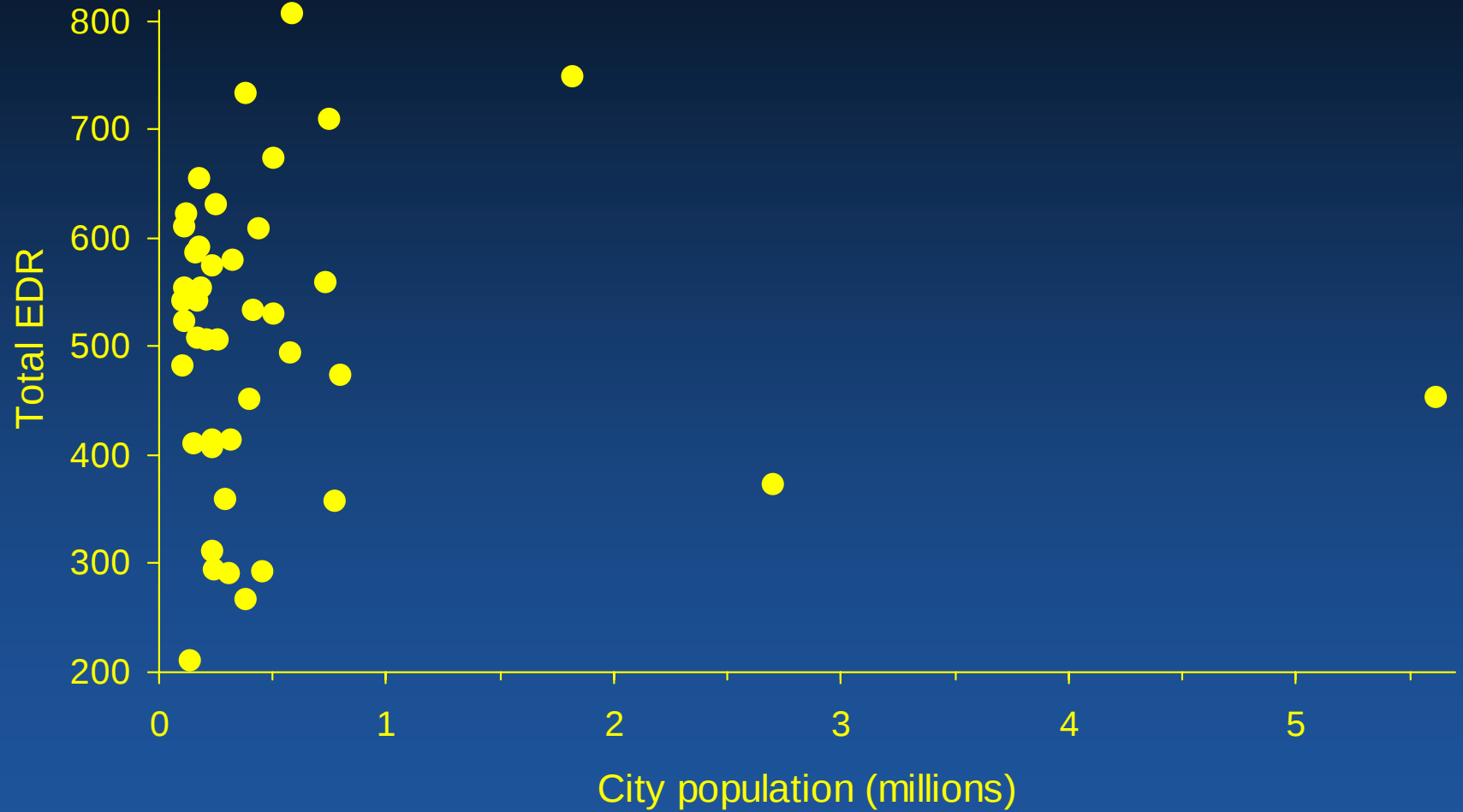
Excess Death Rates: Winter, 1919 by Winter, 1920 43 Study Cities



Spearman's $r = 0.06$ $p > .05$

Figure 52

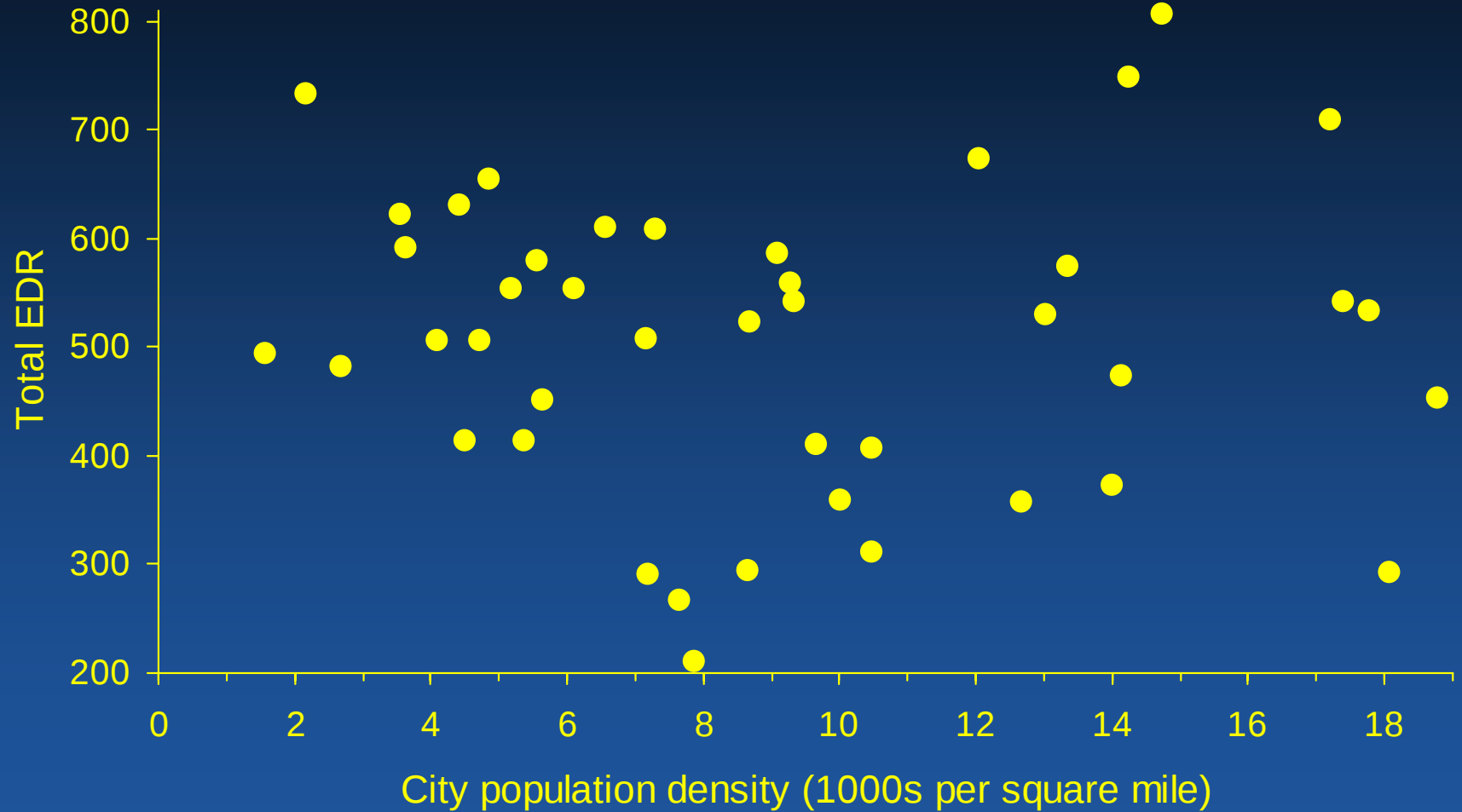
City Population by Total Excess Death Rate



Spearman's $r = 0.00$ $p > .05$

Figure 53

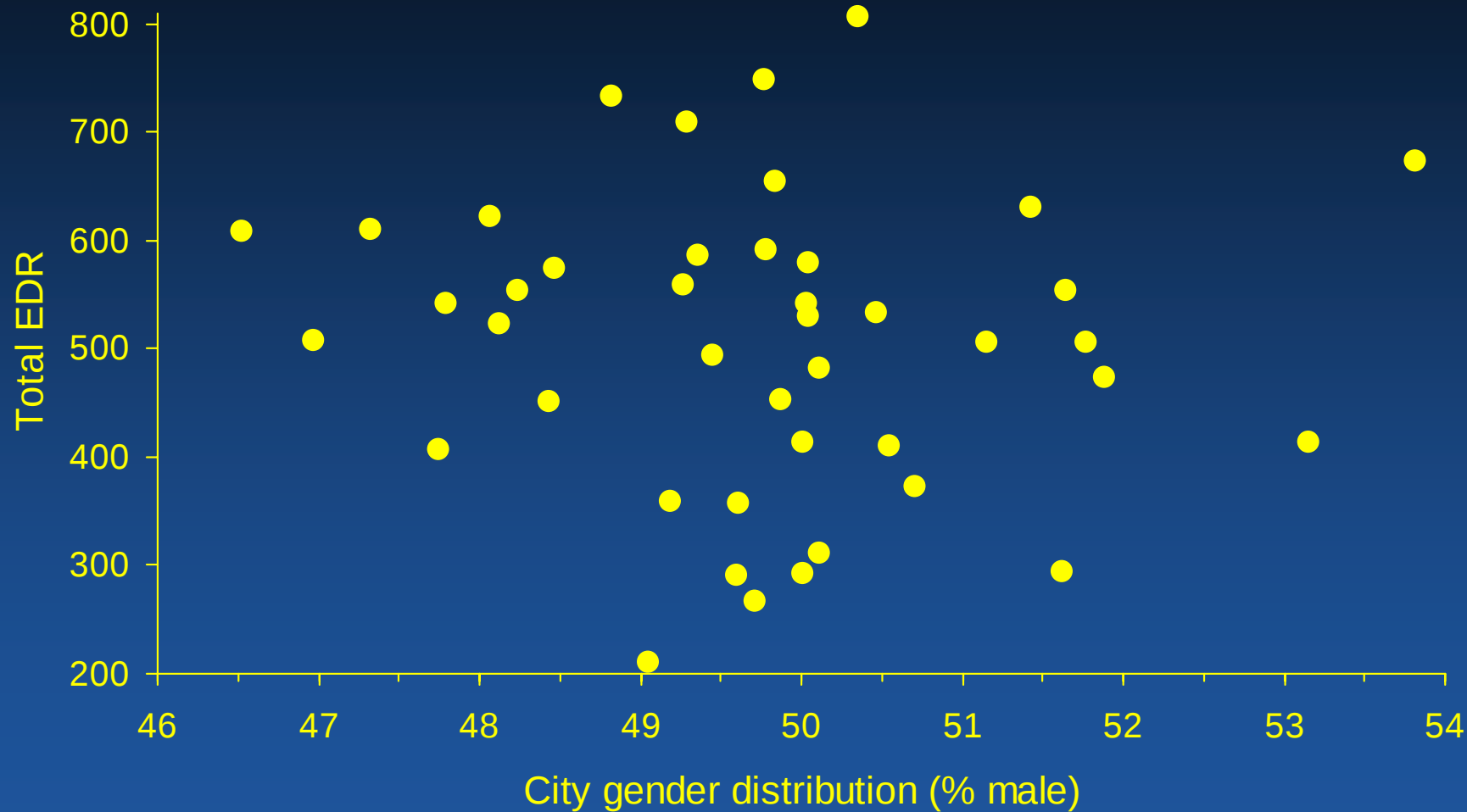
Population Density by Total Excess Death Rate



Spearman's $r = -0.11$ $p > .05$

Figure 54

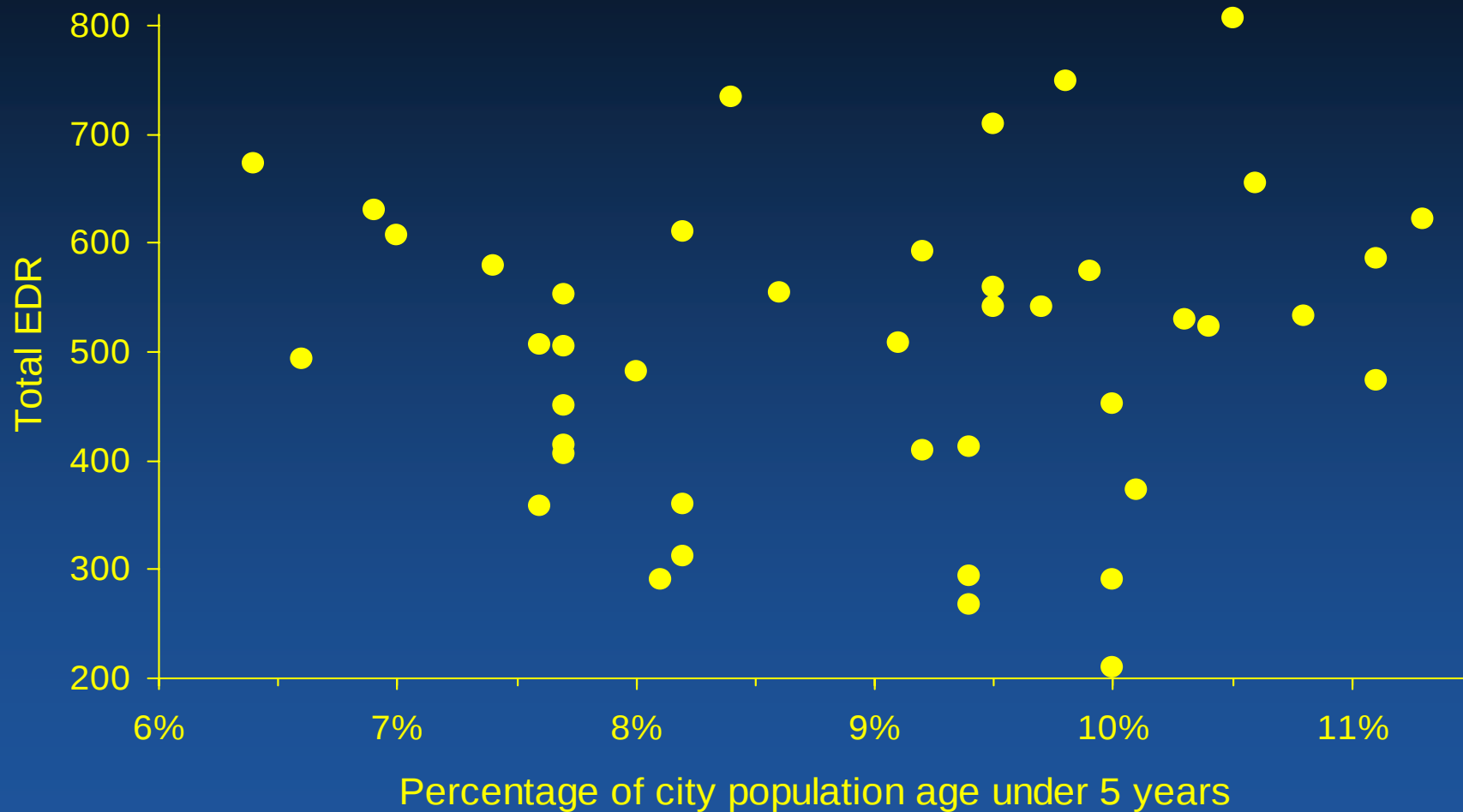
Gender Distribution by Total Excess Death Rate



Spearman's $r = -0.12$ $p > .05$

Figure 55

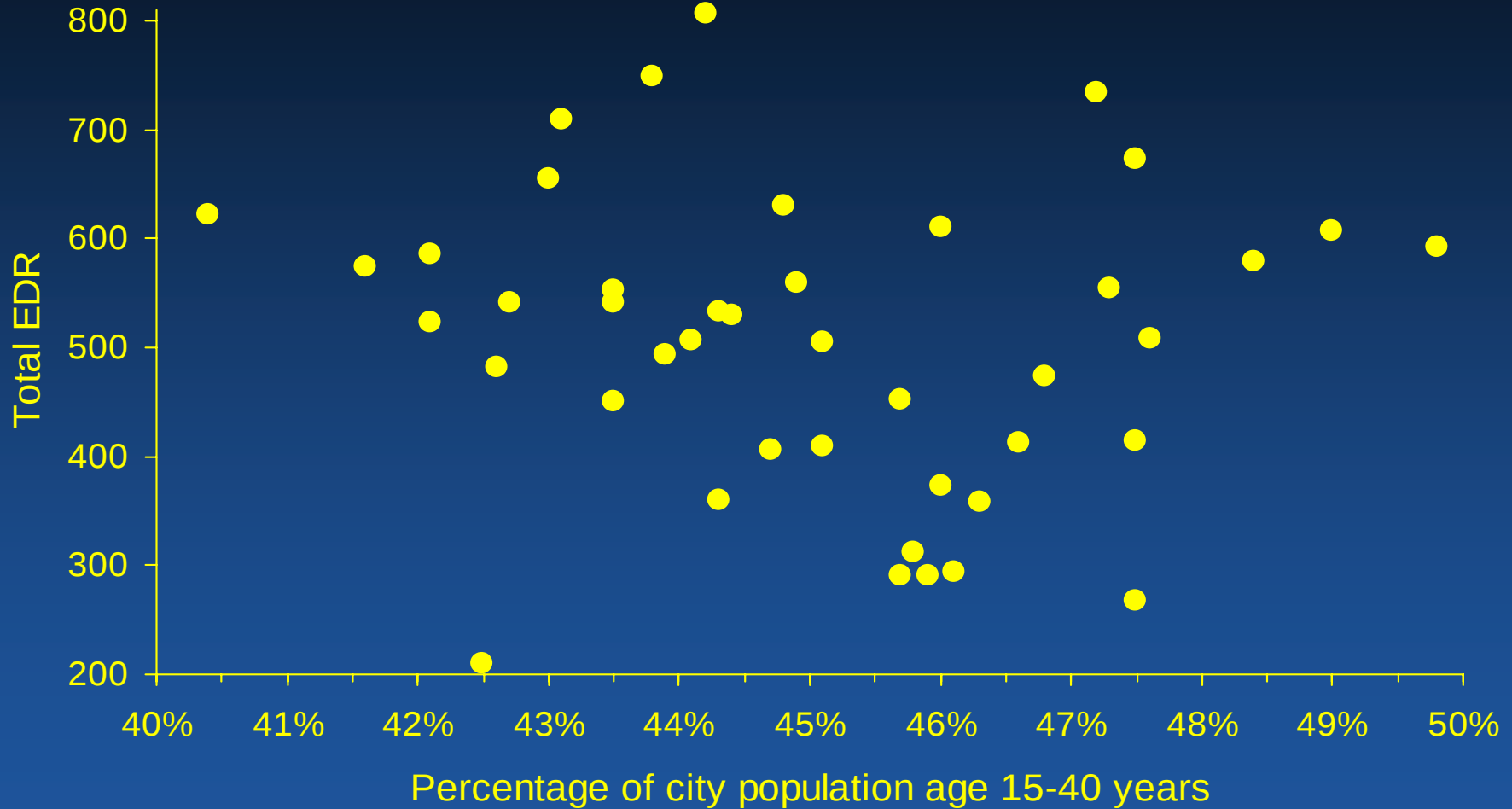
Percentage of City Population Age Under 5 Years by Total Excess Death Rate



Spearman's $r = 0.09$ $p > .05$

Figure 56

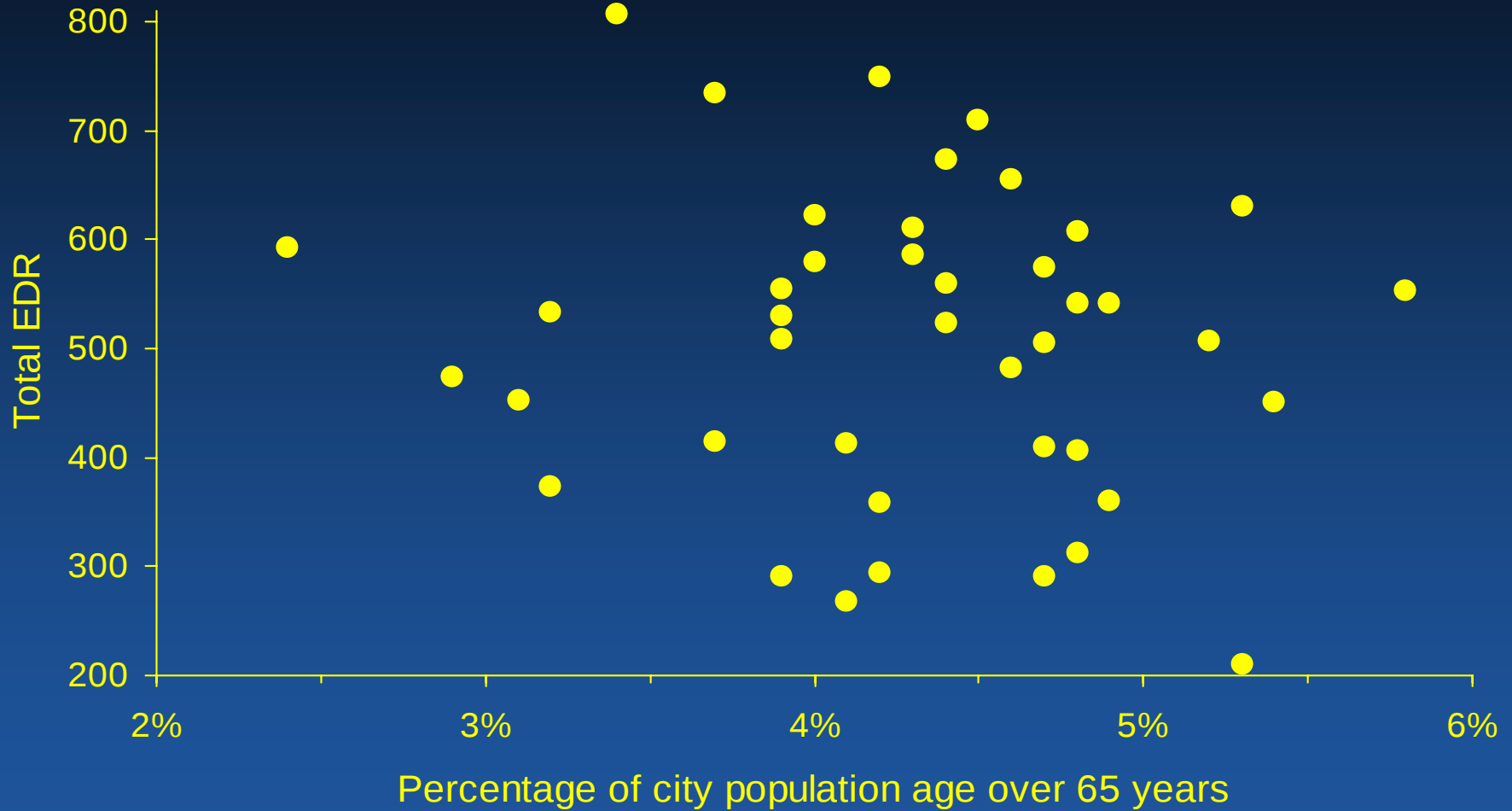
Percentage of City Population Age 15-40 Years by Total Excess Death Rate



Spearman's $r = -0.14$ $p > .05$

Figure 57

Percentage of City Population Age Over 65 Years by Total Excess Death Rate



Spearman's $r = -0.12$ $p > .05$

Figure 58

Percentage of City Population Ages Under 5, 15-40, or Over 65 Years by Total Excess Death Rate

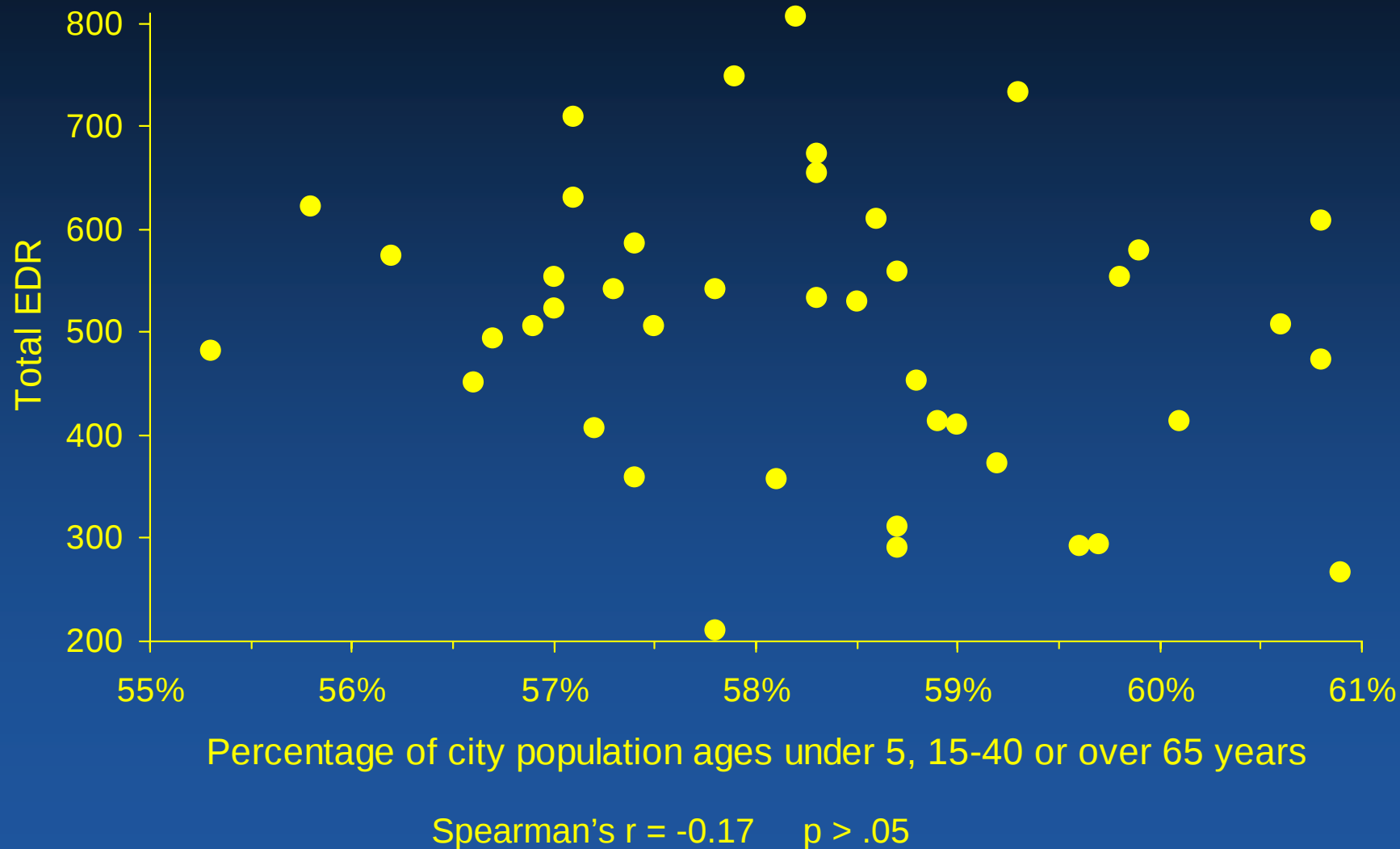


Figure 59