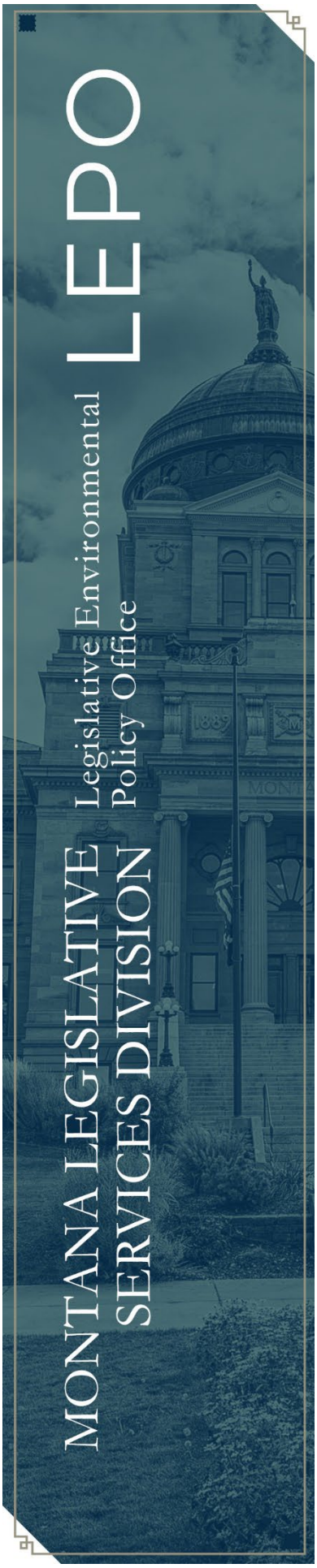


January 25, 2022

Environmental Quality Council
Joe Kolman

PLUMES OF DATA:

AIR QUALITY AND EMERGENCY ROOM VISITS DURING RECENT MONTANA FIRE SEASONS

DATA REQUESTED

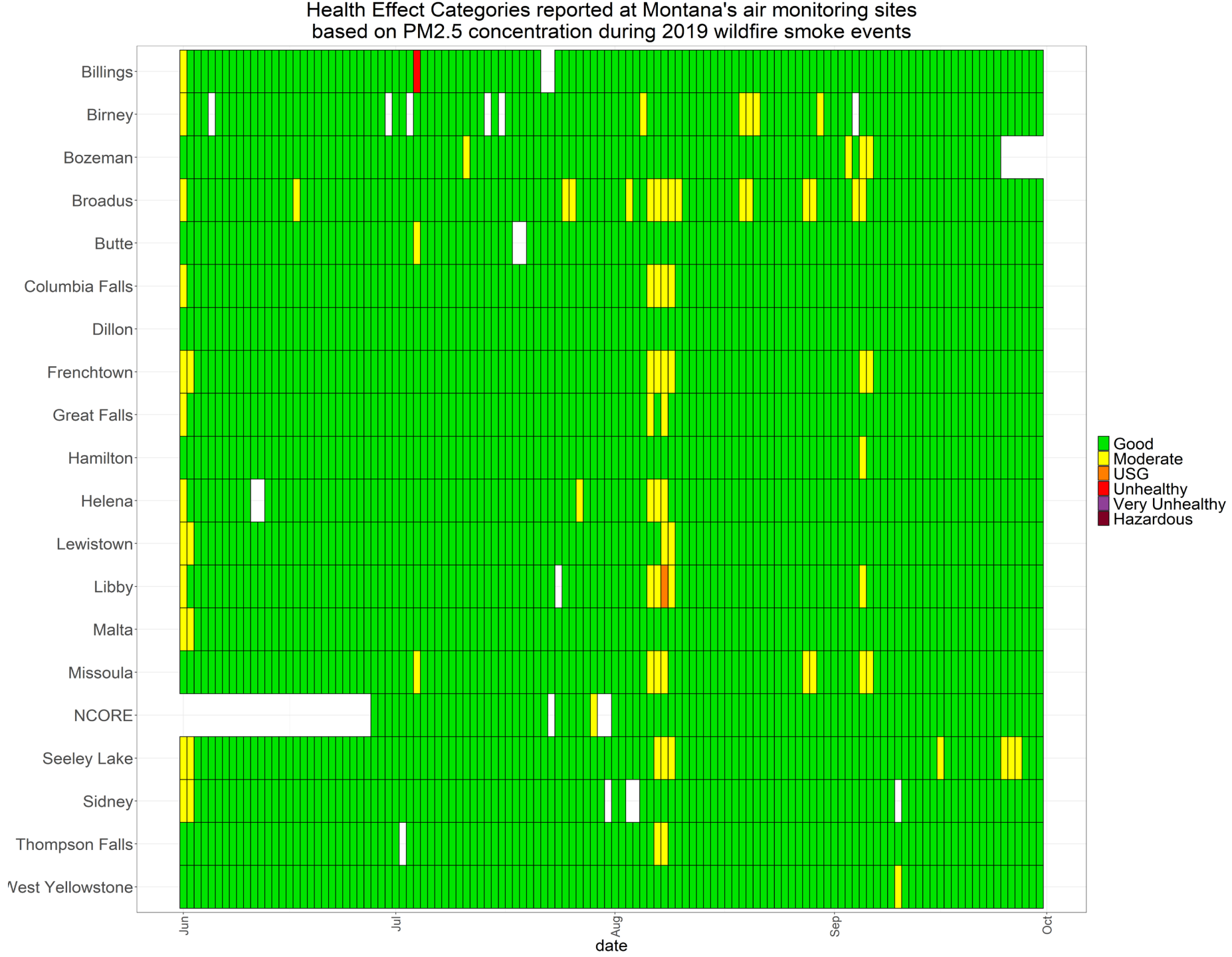
At the request of Environmental Quality Council, the departments of Environmental Quality and Health and Human Services compiled data on air quality and emergency room visits during the last three fire seasons. The graphics are attached, and agency representatives will make presentations at the January 25 EQC meeting.

FURTHER READING.

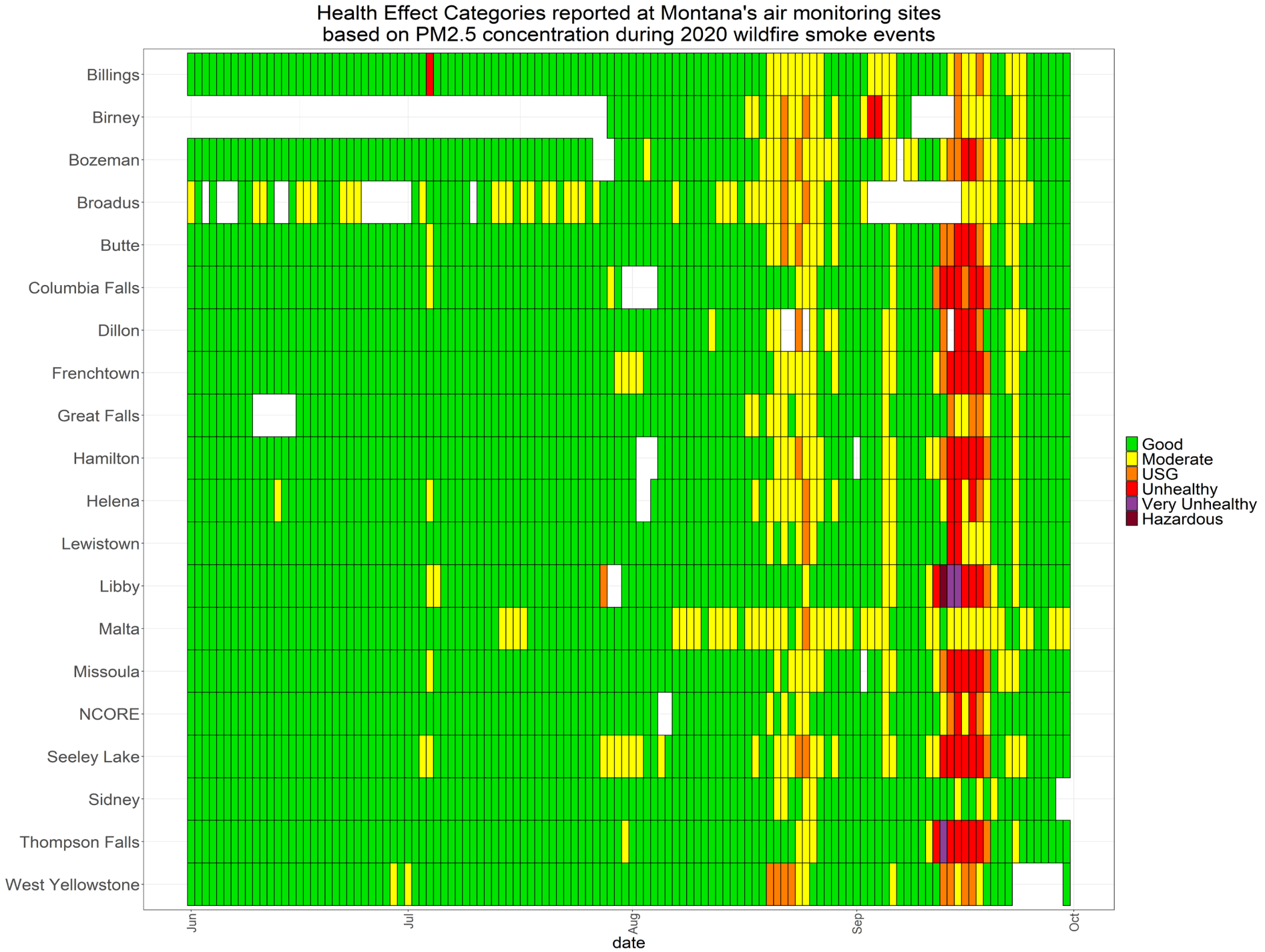
- Eastern US Mortality Air Quality report, AGU
- Delayed Effect of Wildfire Season on Influenza Season journal article
- Sustained Effects on Lung Function in Community Members Following Exposure to Hazardous PM2.5 Levels from Wildfire Smoke

Data provided by Montana Department of Environmental Quality.

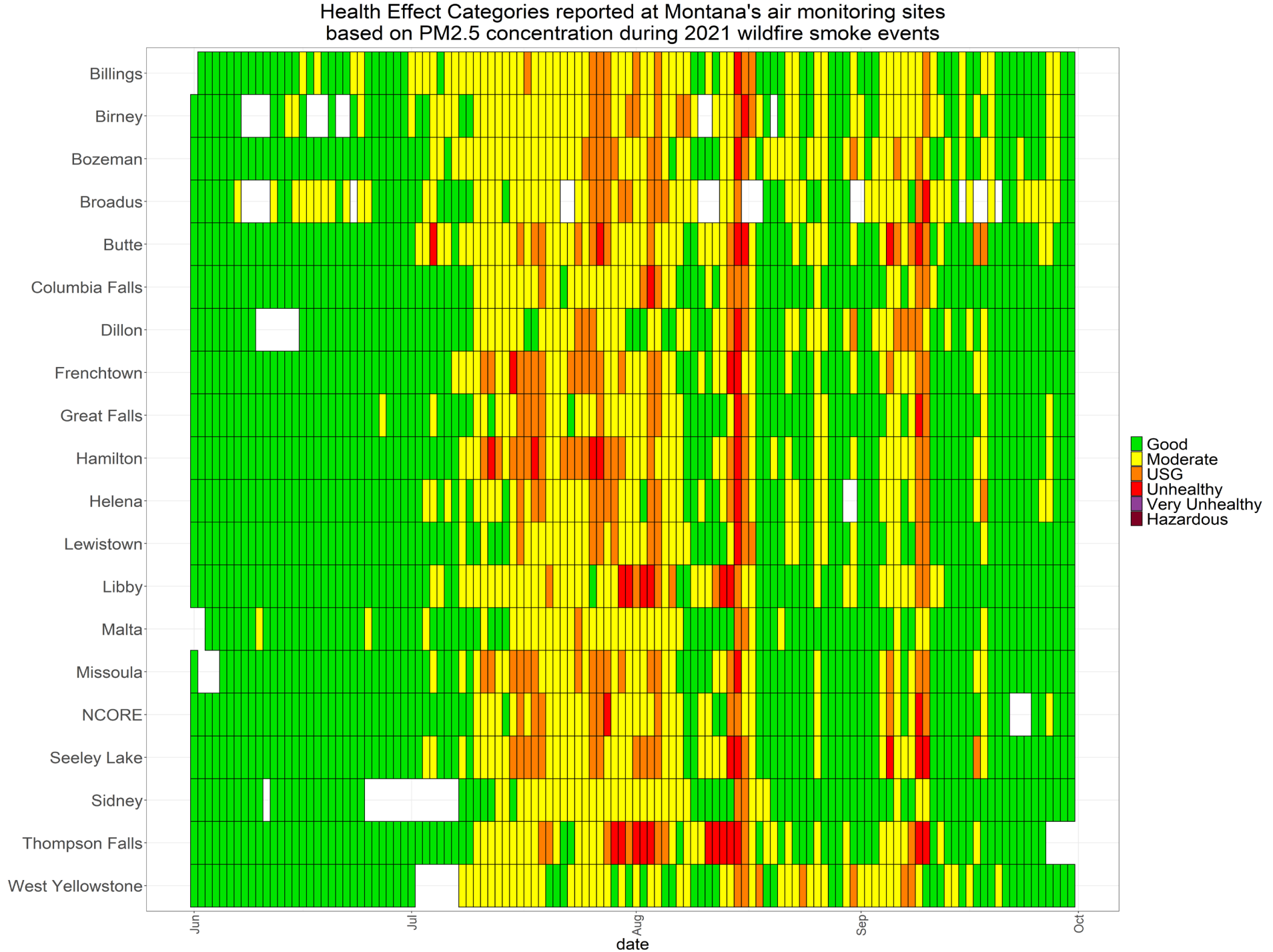
2019



2020


Health Effect Categories reported at Montana's air monitoring sites
based on PM2.5 concentration during 2020 wildfire smoke events
Billings
Birney
Bozeman
Broadus
Butte
Columbia Falls
Dillon
Frenchtown
Great Falls
Hamilton
Helena
Lewistown
Libby
Malta
Missoula
NCORE
Seeley Lake
Sidney
Thompson Falls
West Yellowstone
Jun
Jul
Aug
Sep
Oct
date
Good
Moderate
USG
Unhealthy
Very Unhealthy
Hazardous

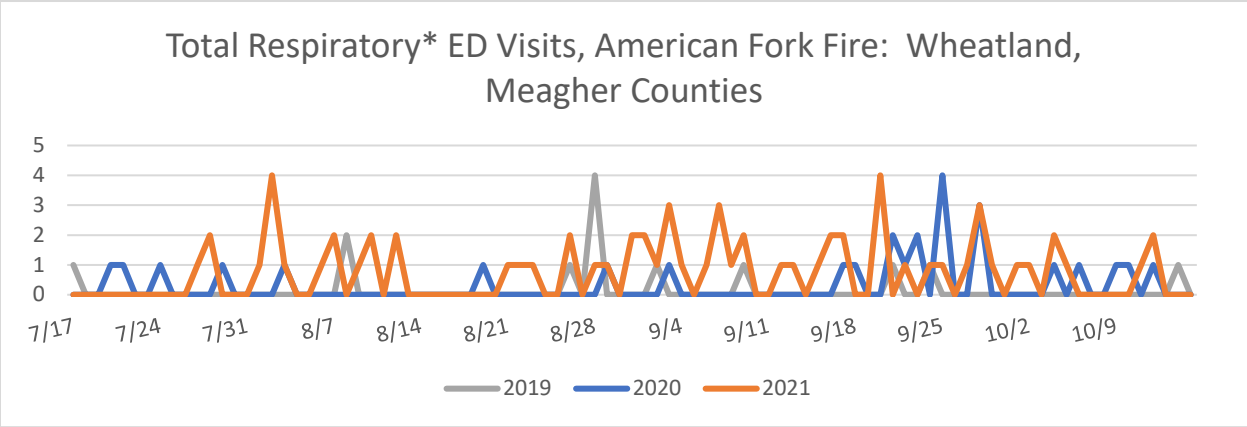
2021

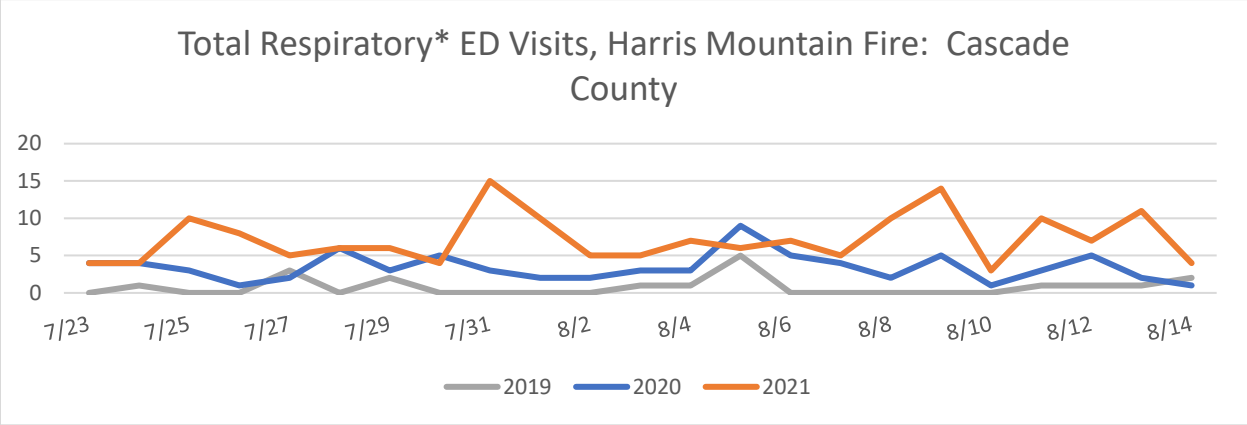

Health Effect Categories reported at Montana's air monitoring sites
based on PM2.5 concentration during 2021 wildfire smoke events
Billings
Birney
Bozeman
Broadus
Butte
Columbia Falls
Dillon
Frenchtown
Great Falls
Hamilton
Helena
Lewistown
Libby
Malta
Missoula
NCORE
Seeley Lake
Sidney
Thompson Falls
West Yellowstone
Jun
Jul
Aug
Sep
Oct
date
Good
Moderate
USG
Unhealthy
Very Unhealthy
Hazardous

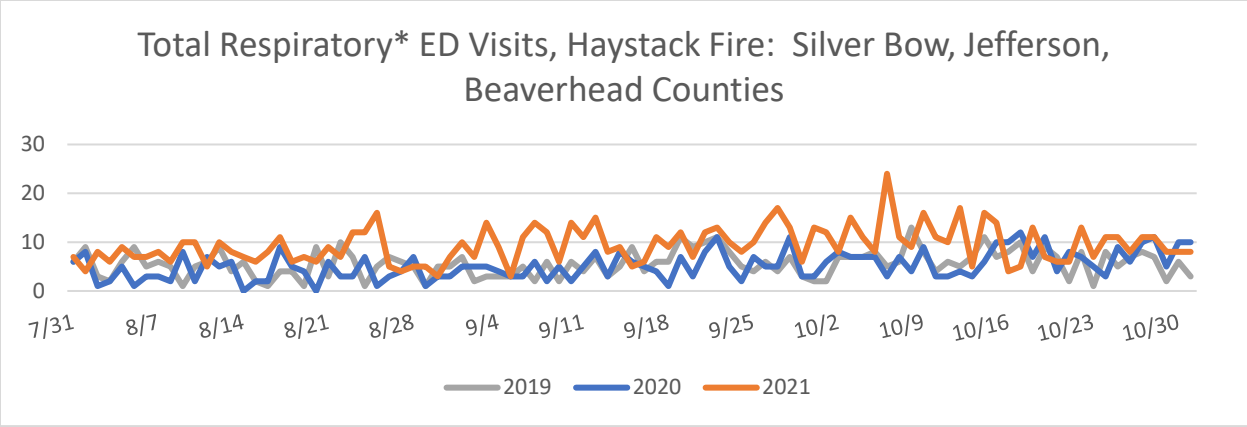
The Department of Health and Human Services examined emergency room visits during some of the more prominent fires in 2021 and compared those to 2020 and 2019. The data reflect visits where the patient complained of asthma, shortness of breath, wheezing or specifically referenced conditions related to fire or smoke.

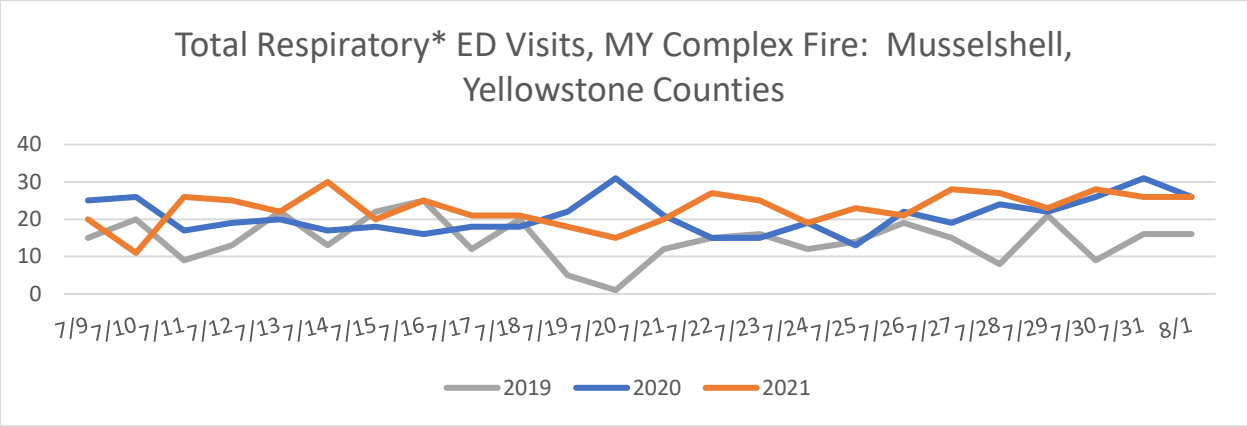
During 2020, ED trends nationwide were abnormal due to changes in utilization caused by the COVID pandemic. Total numbers of ED visits decreased sharply between March 2020 and June 2020, as states implemented lockdown restrictions and patients delayed or avoided health care encounters when feasible.

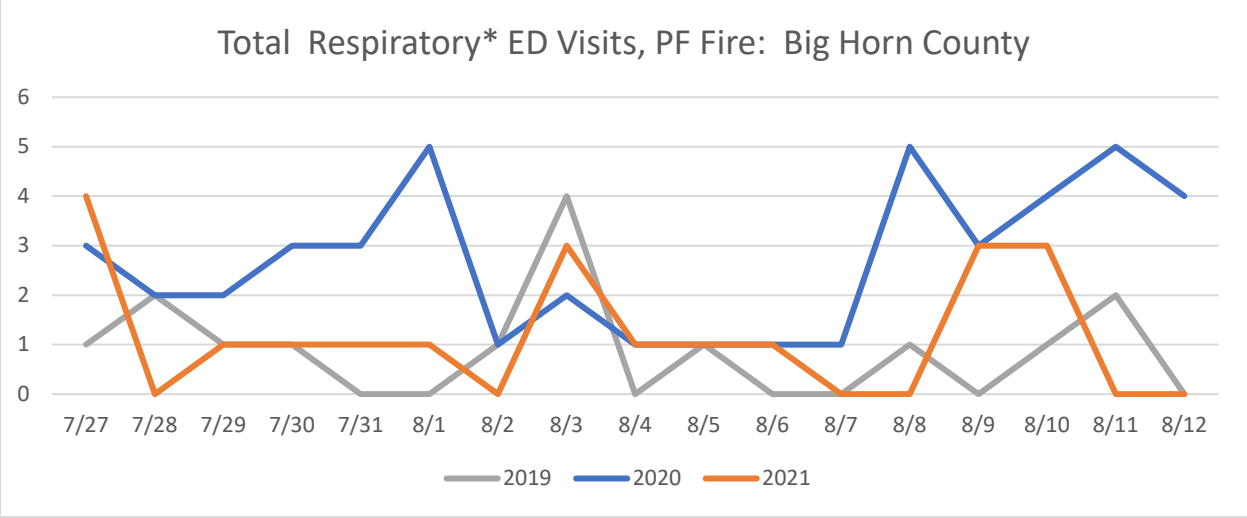
Some COVID respiratory symptoms are like those associated with the inhalation of wildfire smoke, so correlation of smoke with respiratory ED visits may be confounded by underlying rates of COVID infection.

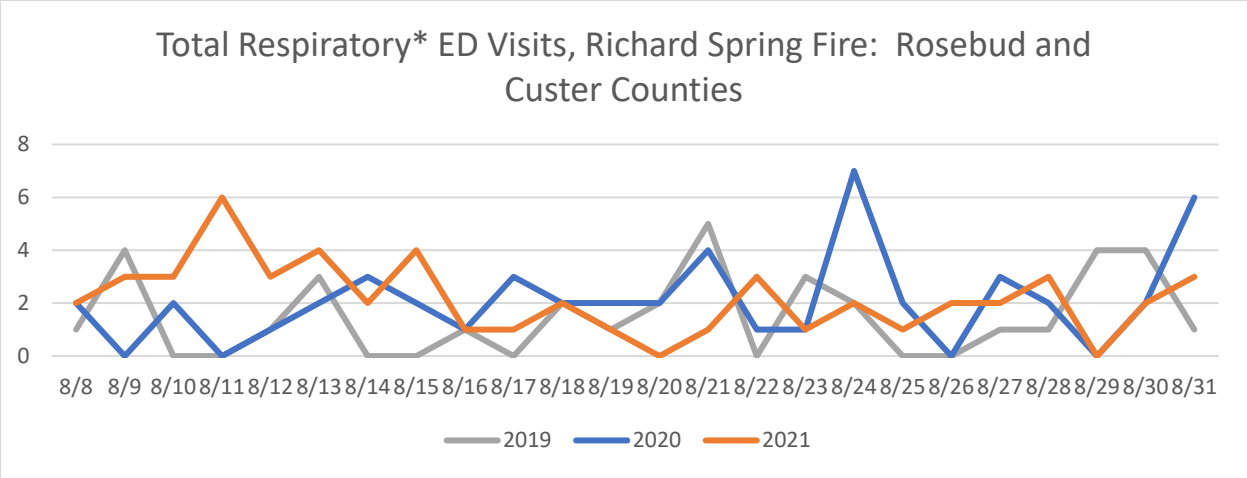


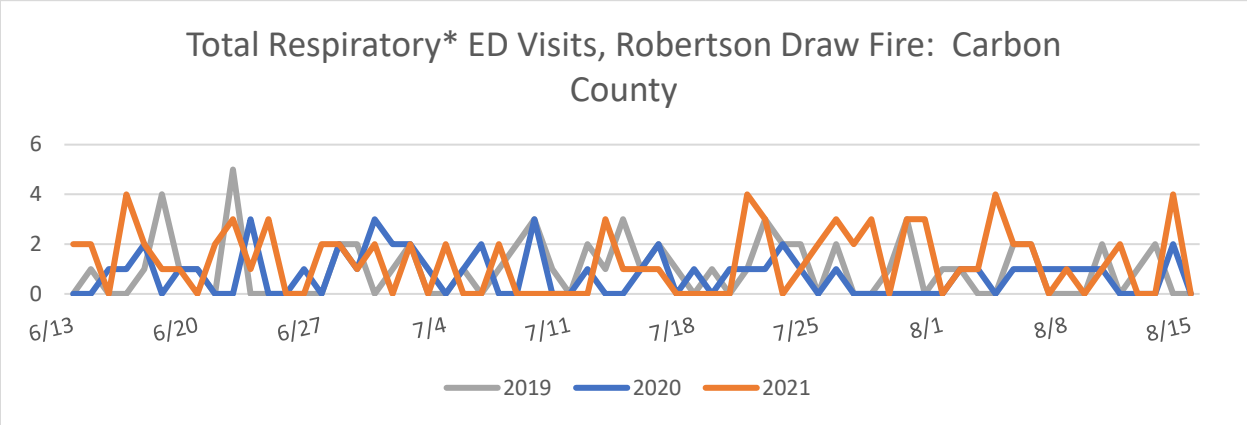


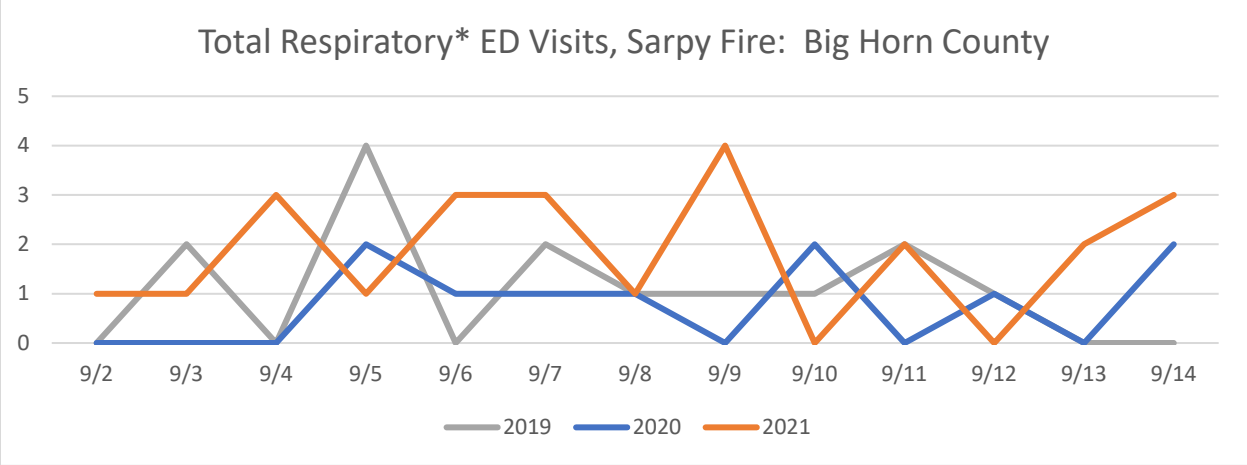

Total Respiratory* ED Visits, Haystack Fire: Silver Bow, Jefferson, Beaverhead Counties
30
20
10
0
7/31
8/7
8/14
8/21
8/28
9/4
9/11
9/18
9/25
10/2
10/9
10/16
10/23
10/30
2019
2020
2021

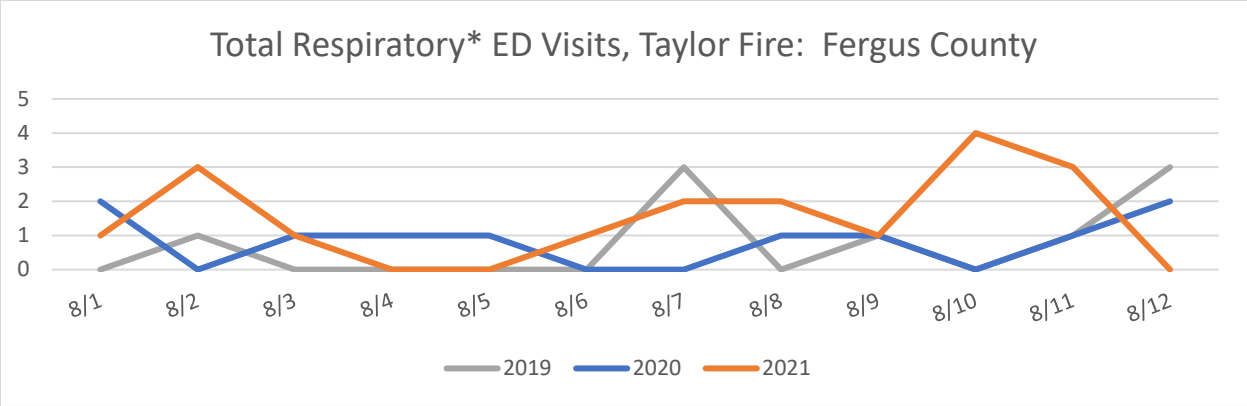

Total Respiratory* ED Visits, MY Complex Fire: Musselshell, Yellowstone Counties
40
30
20
10
0
7/9
7/10
7/11
7/12
7/13
7/14
7/15
7/16
7/17
7/18
7/19
7/20
7/21
7/22
7/23
7/24
7/25
7/26
7/27
7/28
7/29
7/30
7/31
8/1
2019
2020
2021

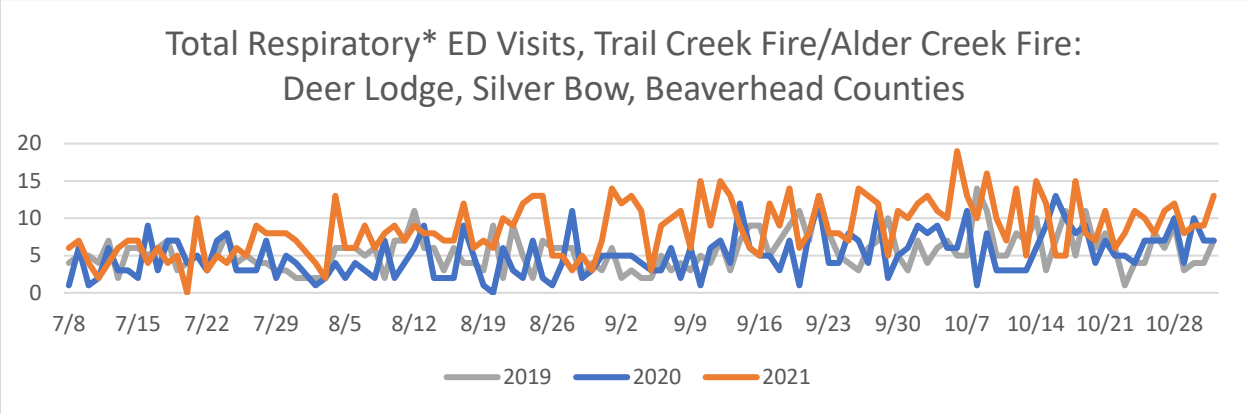

Total Respiratory* ED Visits, PF Fire: Big Horn County
6
5
4
3
2
1
0
7/27
7/28
7/29
7/30
7/31
8/1
8/2
8/3
8/4
8/5
8/6
8/7
8/8
8/9
8/10
8/11
8/12
2019
2020
2021

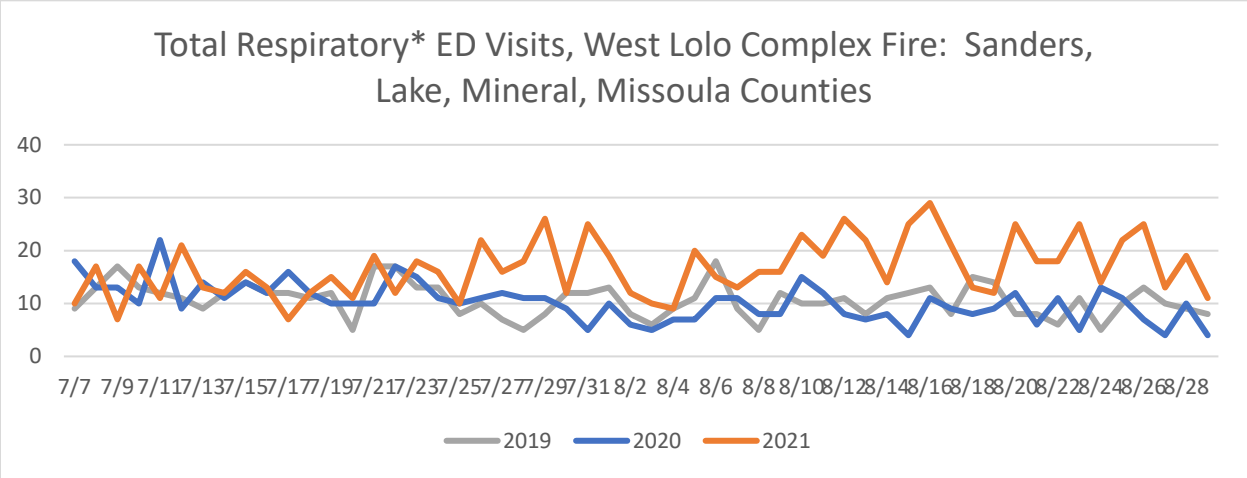

Total Respiratory* ED Visits, Richard Spring Fire: Rosebud and Custer Counties
8
6
4
2
0
8/8 8/9 8/10 8/11 8/12 8/13 8/14 8/15 8/16 8/17 8/18 8/19 8/20 8/21 8/22 8/23 8/24 8/25 8/26 8/27 8/28 8/29 8/30 8/31
2019
2020
2021

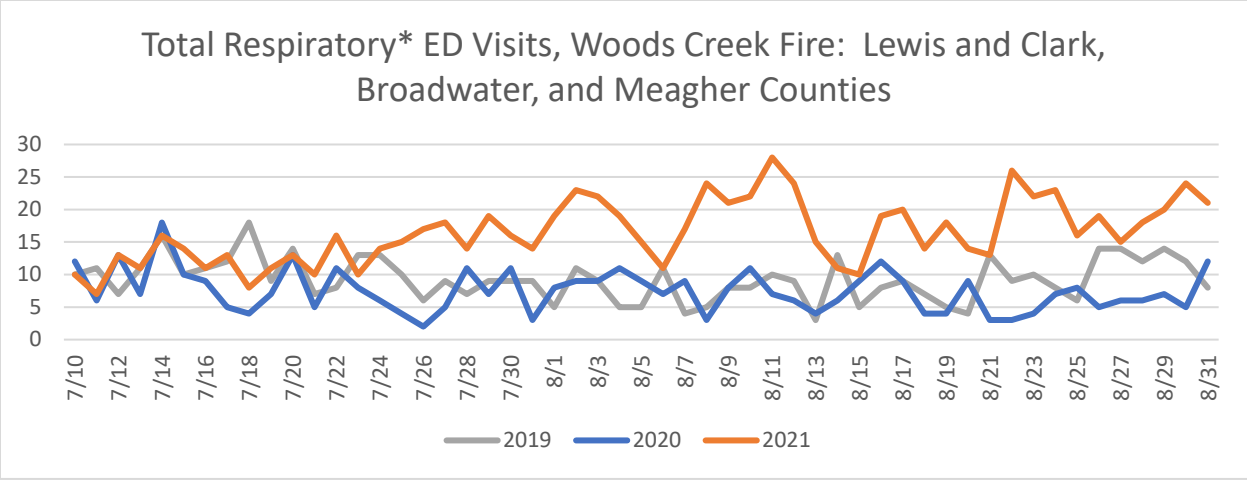

Total Respiratory* ED Visits, Robertson Draw Fire: Carbon County
6
4
2
0
6/13 6/20 6/27 7/4 7/11 7/18 7/25 8/1 8/8 8/15
2019
2020
2021


Total Respiratory* ED Visits, Sarpy Fire: Big Horn County
5
4
3
2
1
0
9/2 9/3 9/4 9/5 9/6 9/7 9/8 9/9 9/10 9/11 9/12 9/13 9/14
2019
2020
2021


Total Respiratory* ED Visits, Taylor Fire: Fergus County
5
4
3
2
1
0
8|1
8|2
8|3
8|4
8|5
8|6
8|7
8|8
8|9
8|10
8|11
8|12
2019
2020
2021


Total Respiratory* ED Visits, Trail Creek Fire/Alder Creek Fire:
Deer Lodge, Silver Bow, Beaverhead Counties
20
15
10
5
0
7/8
7/15
7/22
7/29
8/5
8/12
8/19
8/26
9/2
9/9
9/16
9/23
9/30
10/7
10/14
10/21
10/28
2019
2020
2021


Total Respiratory* ED Visits, West Lolo Complex Fire: Sanders,
Lake, Mineral, Missoula Counties
40
30
20
10
0
7/7
7/9
7/11
7/13
7/15
7/17
7/19
7/21
7/23
7/25
7/27
7/29
7/31
8/2
8/4
8/6
8/8
8/10
8/12
8/14
8/16
8/18
8/20
8/22
8/24
8/26
8/28
2019
2020
2021


Total Respiratory* ED Visits, Woods Creek Fire: Lewis and Clark, Broadwater, and Meagher Counties
30
25
20
15
10
5
0
7/10
7/12
7/14
7/16
7/18
7/20
7/22
7/24
7/26
7/28
7/30
8/1
8/3
8/5
8/7
8/9
8/11
8/13
8/15
8/17
8/19
8/21
8/23
8/25
8/27
8/29
8/31
2019
2020
2021