

October 25, 2022



CTS INSPIRATIONS

CTS NEWS

President's Message

Dear colleagues,

As we head into the winter season with increased rates of respiratory infections, please stay healthy and vigilant for our own health, the patients we care for and others around us.

I would like to promote an exciting upcoming event! The CTS Education Committee is hosting an educational initiative catered towards Internal Medicine residents who are considering investing their careers in PCCM. Please join this webinar, "CTS Internal Medicine Residents' Fellowship Guidance Session" on November 4th, 2022, from 5:30 to 6:45 PM.

Also, please mark your calendar for the CTS Educational CME conference, which will be held at the Portola Resort and Spa, Jan 12-14th, 2023. The conference will focus on multidisciplinary care in pulmonary, critical care, and sleep medicine, as well as a Poster Awards session for PCCM fellows, and a Women in PCCM evening venue. We look forward to hosting another exciting live conference.

It is hard to believe winter is here which comes with so much excitement for the upcoming "holidays", the first of which is Halloween. Although not a "holiday", my children would beg to differ and my two-year-old is just starting to grasp the concept of "trick or treat"! Wishing all of you a happy Fall season!

Warmly,

A handwritten signature in black ink that reads "Michelle Cao".

Michelle Cao, DO
Stanford University



CTS Newsletter –October 2022
Asha Devereaux, MD, MPH
Pulmonary Medicine, Coronado, CA
CAL-MAT Chief Medical Officer-San Diego Unit



Firefighters who work on wildland fires and prescribed burns (shown here) can be exposed to high levels of harmful smoke.
 Jess Burns/OPB

NPR 6/12/2019

Within the last decade, California has experienced the largest fires in its history. The incidence of wildland fires continues to grow due to our state's drought conditions, water supply issues, and urbanization. (Table 1) This impacts our air quality and increases the incidence of asthma and exacerbations of chronic cardiopulmonary diseases as noted by an increase in emergency room visits for COPD, asthma, and CHF exacerbations.^{1,2} Thanks to Dr. Neeta Thakur, CTS is updating its 2018 Fact Sheet to assist our members with a visual graphic regarding ways to mitigate the respiratory impacts of wildfires on personal health and safety.³ <https://calthoracic.org/california-wildfires/> We hope that you will find this useful for your patients and family members.

Top 20 Largest California Wildfires					
FIRE NAME (CAUSE)	DATE	COUNTY	ACRES	STRUCTURES	DEATHS
1 AUGUST COMPLEX (Lightning)	August 2020	Mendocino, Humboldt, Trinity, Tehama, Glenn, Lake, & Colusa	1,032,648	905	1
2 DIXIE (Powerlines)	July 2021	Butte, Plumas, Lassen, Shasta & Tehama	963,309	1,311	1
3 MENDOCINO COMPLEX (Human Related)	July 2018	Colusa, Lake, Mendocino & Glenn	459,123	280	1
4 SCU LIGHTNING COMPLEX (Lightning)	August 2020	Stanislaus, Santa Clara, Alameda, Contra Costa, & San Joaquin	396,625	225	0
5 CREEK (Undetermined)	September 2020	Fresno & Madera	379,895	858	0
6 LNU LIGHTNING COMPLEX (Lightning/Arson)	August 2020	Napa, Solano, Sonoma, Yolo, Lake, & Colusa	365,220	1,491	6
7 NORTH COMPLEX (Lightning)	August 2020	Butte, Plumas & Yuba	318,935	2,352	15
8 THOMAS (Powerlines)	December 2017	Ventura & Santa Barbara	281,893	1,090	2
9 CEDAR (Human Related)	October 2003	San Diego	275,246	2,820	15
10 RUSH (Lightning)	August 2012	Lassen	271,911 CA / 43,666 NV	0	0
11 RIM (Human Related)	August 2013	Tuolumne	257,314	112	0
12 ZACA (Human Related)	July 2007	Santa Barbara	240,207	1	0
13 CARR (Human Related)	July 2018	Shasta County & Trinity	229,651	1,614	8
14 MONUMENT (Lightning)	July 2021	Trinity	225,124	28	0
15 CALDOR (Human Related)	August 2021	Alpine, Amador, & El Dorado	221,835	1,005	1
16 MATILAJA (Undetermined)	September 1932	Ventura	220,000	0	0
17 RIVER COMPLEX (Lightning)	July 2021	Siskiyou & Trinity	199,359	122	0
18 WITCH (Powerlines)	October 2007	San Diego	197,990	1,650	2
19 KLAMATH THEATER COMPLEX (Lightning)	June 2008	Siskiyou	192,038	0	2
20 MARBLE CONE (Lightning)	July 1977	Monterey	177,866	0	0

There is no doubt that there were fires with significant acreage burned in years prior to 1932, but those records are less reliable, and this list is meant to give an overview of the large fires in more recent times. This list does not include fire jurisdiction. These are the Top 20 regardless of whether they were state, federal, or local responsibility.

*Numbers not final.



10/24/2022

Table 1: https://www.fire.ca.gov/media/4jandlhh/top20_acres.pdf accessed 10/17/22

As we focus our efforts to study the impact of wildfire on populations and research how best to mitigate wildfires, we can't neglect a heroic group of professionals on the fire lines who are also impacted by wildfires. Who cares for the firefighters and all the responding personnel at Fire Basecamps? Fortunately, California has a unique medical disaster response system called CAL-MAT. The California Medical Assistance Teams (CAL-MAT) are comprised of volunteer health professionals throughout the state who become paid state employees when deployed. The system is modeled after the federal Disaster Medical Assistance Teams (DMAT) in the National Disaster Medical System (NDMS) and has over 1200 volunteers divided into regional units. The Emergency Medical Services Authority (EMSA) of California is responsible for oversight and logistical support of the program. In addition to COVID-19 alternate care facilities, distribution of ventilators, oxygen, and other shelter support, CAL-MAT also provides support to CAL-FIRE at the fire basecamps to meet the urgent care needs of firefighters in order to keep them healthy and on the fire lines.^{4,5,6}

<https://emsa.ca.gov/cal-mat-phase-i-registration/>

In September 2022, I was deployed to the Fairview Fire in Southern California with a team of professionals including a surgeon, 3 nurses, and 4 EMTs. The medical tent has ACLS capabilities, can perform basic urgent care, and provide respiratory support, including COVID-19 rapid antigen and viral PCR testing. Although respiratory illnesses and camp associated gastroenteritis were common, other issues such as ocular injuries due to debris from high winds, minor lacerations, and skin conditions predominated. Major incidents, such as a helicopter crash that occurred at the fire site, are immediately managed by EMS positioned at various points on the fireline and transported to pre-designated burn and trauma centers.



Different medical issues arise depending on the region of California, weather, and local conditions where a fire is located. (Table 2) For example, we were surprised by the high incidence of Poison Oak afflicting our firefighters in Northern California and created protocols for management, in addition to adding an extensive number of cleansers, solutions, and steroids to the medical cache.⁷

Table 2: Diagnoses recorded on patient care record for patients seen by health care provider in CAL-MAT medical tent of CAL FIRE incident base camp 2020 (N = 1631)

Diagnoses	Cases	Percentage
Poison oak	615	37.36%
COVID PUI	119	7.23%
Rash	85	5.16%
Pain	72	4.37%
Insect sting	65	3.95%
Other	62	3.77%
Laceration/Puncture	55	3.34%
Sprain/Strain	51	3.10%
Blister	42	2.55%
Abrasion/Bruise/Contusion	41	2.49%
Skin infection/Cellulitis/Abscess	39	2.37%
Pulmonary infection	33	2.00%
Earache/cerumen impaction/fb	33	2.00%
Smoke inhalation	29	1.76%
Throat irritation	27	1.64%
Nausea/Vomiting	27	1.64%
Back pain	26	1.58%
Burns	24	1.46%
Diabetes/Glycemic control	23	1.40%
Foreign body in eye	18	1.09%
Diarrhea	16	0.97%
Abdominal pain	15	0.91%
Medication refill	15	0.91%
Heat illness	12	0.73%
Nasal congestion	11	0.67%
Conjunctivitis	11	0.67%
Dental pain	9	0.55%
Chest pain	9	0.55%
Asthma	9	0.55%

It was a distinct honor to have served at basecamp, notably during 9/11. The firefighters were awed by having capable professionals serve them and we were equally grateful for their bravery. I encourage anyone interested to sign-up. We have many retired PCCM clinicians, respiratory therapists, ICU nurses, and advanced practice providers participating in the program. CAL-MAT continues to evolve as disaster needs arise in the state and we hope you can join in enhancing the program further.

References:

1. Alman et. al. The Association of Wildfire Smoke with Respiratory and Cardiovascular Emergency Department Visits in Colorado in 2012: a Case Crossover Study. *Env. Hlth* 15: 64. 2016
2. Reid CE, Brauer M, Johnston FH, Jerrett M, Balmes JR, Elliott CT. 2016. Critical review of health impacts of wildfire smoke exposure. *Environ Health Perspect* 124:1334–1343; <http://dx.doi.org/10.1289/ehp.1409277>
3. Jamil S, W. Carlos G, Leard L, Wang A, Santhosh L, Balmes J, Seam N, Dela Cruz C, Wildfires Disaster Guidance: Tips for Staying Healthy during Wildfires. *Am J Respir Crit Care Med* Vol. 199, P3-P4, 2019
4. Backer, H., Duncan, D., Christensen, K., Devereaux, A., Rosen, B., Noste, E., . . . Johnson, C. (2021). Medical Support for California Wildfire Response. *Disaster Medicine and Public Health Preparedness*, 1-8. doi:10.1017/dmp.2021.347

5. Devereaux AV, Backer H, Salami A, et al. Oxygen and ventilator logistics during California's COVID-19 Surge: When Oxygen becomes a Scarce Resource. *Disaster Med Public Health Prep*. doi: [https://doi.org/ 10.1017/dmp.2021.267](https://doi.org/10.1017/dmp.2021.267).
6. Christensen, K., Metzner, M., Lovett-Floom, L., Lindsay, C., Meghoo, C., Staats, K., . . . Backer, H. (2022). Utilization of Alternate Care Sites During the COVID-19 Surge and Mass Care: California, 2020–2021. *Disaster Medicine and Public Health Preparedness*, 1-6. doi:10.1017/dmp.2022.93
7. Backer, H., Wright, C., Dong, J., Baba, N., McFadden, H., & Rosen, B. (2021). Medical Care at California Wildfire Incident Base Camps. *Disaster Medicine and Public Health Preparedness*, 1-8. doi:10.1017/dmp.2021.321

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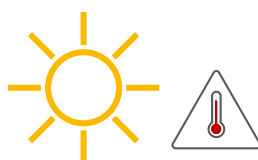
Staying Healthy During Wildfires

Wildfires are increasing.

Why?



We are in a drought.
This leads to less ground water → drier forests.

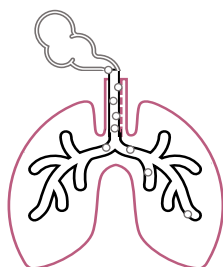


We are experience more extreme heat days
Compared to 50 years ago, we have 10x more extreme heat days.

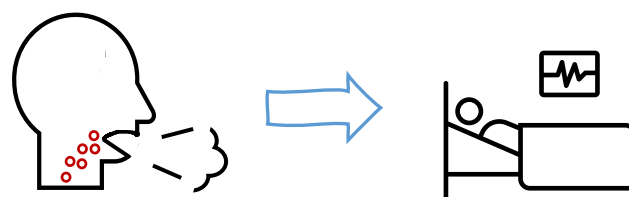


Snowcaps are melting early.
This leads to vegetation drying out before fire season and serves as future kindling.

Wildfires impact your breathing.

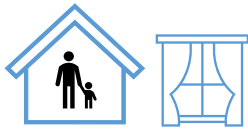


Particulate matter from wildfires gets into your lungs (even if you don't see or smell smoke).



This may make you short of breath and cause flair ups of your respiratory conditions. Wildfire smoke also increases risk of heart attacks and stroke.

Tips to protect yourself.



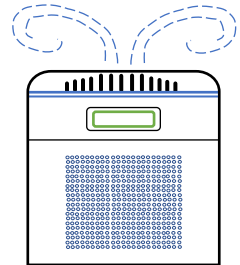
Stay indoors and keep windows & doors closed.



Reduce activities that increase indoor air pollutants.



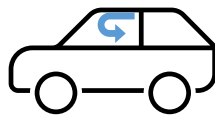
Keep the room clean. Wipe surfaces, but do not vacuum (puts smoke particles back in the air).



Use an air filtration device (HVAC or portable device). Make sure you have clean/new filters



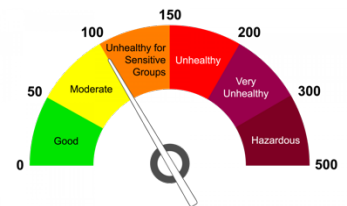
Keep medications handy. Take your maintenance (“controller”) medications. If you take an inhaler sometimes, ask your provider about starting before fire season. Also ask about an Rx for a steroid burst to have as needed.



When traveling, recirculate the air. Staying home is best. If you need to travel, close windows, and recirculate the air.

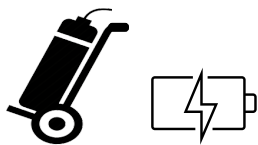


Respirators (e.g., N95) can reduce exposure. Need to have the right type and fit. Review how to use properly [here](#).



Check the [Air Quality Index](#) in your area. Considering evacuation if making your breathing worse.

Prepare in advance.



Emergency Medical Equipment. Have back-up oxygen e-tanks available (more than 1). Make sure back-up batteries are in working order and fully charged for all devices (portable oxygen concentrators, nebulizer, CPAP/BiPAP machines and home mechanical ventilators)

).



Pack an evacuation bag. This should include a week’s worth of medications (pills, inhalers, nebulizers), oxygen e-tanks, batteries, face masks (N95 or equivalent). Other essentials to pack are available [here](#).

More on air filtration

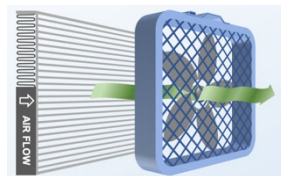
Portable Filtration Devices

General Tips

- Ensure can filter small particles (MERV \geq 13); HEPA filters meet this criterion!
- Great for cleaning a single room.
- [Size appropriately for the room](#) (width x length x height). Aim for 2 – 5 air changes per hour.
- Do not use air cleaners that produce ozone (“super oxygenators”, deionizers).

DIY Filter Box Fans

- Low-cost option
- To be used during most intense wildfire smoke event periods
- The CTS does not recommend the routine use of DIY Filter Box Fans as a permanent solution.
- More information about how to make and safely use available [here](#).



Make sure air is not recycled from outside.

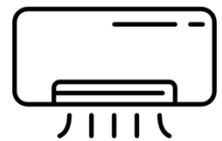
HVAC Systems

- Set to recirculate, close the outdoor intake damper.
- HVAC with filters, set to continuous operation. Ensure filter is MERV 13 or higher



Air Conditioners

- Do not use window air conditioner if cannot close outdoor damper
- Portable air conditioner with a single hose - do not use if vents outside
- Portable air conditioner with two hoses - ok to use, just ensure seals are tight



This document has been created by Dr. Neeta Thakur-UCSF.

Approved and Reviewed by: CTS Clinical Practice Committee



CSRC CORNER

Proposed Updates to Clinical Laboratory Improvement Amendments (CLIA)

By Krystal Craddock MSRC, RRT, RRT-NPS, AE-C, CCM

Respiratory care practitioners (RCP's) are most often the clinicians drawing and running blood gases within the acute care and outpatient settings. It makes sense, as they're assuring that the results correlate with the care and the trajectory of the patient's progress or decline. As well, the RCP is adjusting the patient's pulmonary interventions as part of the interdisciplinary team decision. Blood gasses are processed at point of care or in the lab, both categorized as a Moderate Complexity Lab. These Moderate Complexity Labs are regulated by the College of American Pathologists (CAP) and the Clinical Laboratory Improvement Amendments (CLIA) which is overseen by the FDA, CDC, and CMS. Moderate complexity testing usually includes tests such as urinalysis, electrolyte profiles, chemistry, and complete blood count. Currently, CLIA is proposing changes to Moderate Complexity Lab personnel that may negatively affect RCP's.



The proposed qualifications for testing personnel for running blood gases in a Moderate Complexity Labs by CLIA include:

- ◆ Having earned an associate degree in a chemical or biological science, medical laboratory technology, or nursing from an accredited institution, *or*
- ◆ Having earned a bachelor's degree in respiratory therapy (BSRC) or cardiovascular technology from an accredited institution and have at least 1 year of laboratory training or experience, or both, in blood gas analysis, *or*
- ◆ Having earned an associate degree related to pulmonary function from an accredited institution and have at least 2 years of training or experience, or both, in blood gas analysis.

While CLIA is taking recommendations through months end, the American Association for Respiratory Care (AARC), in conjunction with state societies including the CSRC, are recommending that CMS reconsider allowing respiratory therapists to meet the requirements by having earned an associate degree in a biologic science to performing analyzing blood gases in the Moderate Complexity Lab. Furthermore, the AARC is requesting clarification on the "laboratory training or experience" that was put forth as an additional proposed requirement for lab personnel.

In addition, CLIA has also put forward recommendations to expand opportunities for personnel to meet technical consulting requirements. These include:

- ♦ Adding an associate degree in medical laboratory technology or clinical laboratory science and at least 4 years of laboratory training or experience, or both;
- ♦ Providing an educational algorithm based on semester hours for those who have not earned a bachelor's degree in a chemical, biological, or clinical laboratory science or medical technology from an accredited institution; and
- ♦ Having earned a BSRC or cardiovascular technology from an accredited institution with at least 2 years of laboratory training or experience, or both, in blood gas analysis.

These are welcome changes by the CSRC, as CAP has implemented stringent minimum requirements to be a technical consultant in Moderate Complexity Labs that does not include a BSRC. This has left many Blood Gas Labs in a bind and requires Medical Directors to perform blood gas competencies on RCPs to stay compliant with CAP regulations. The CSRC met with members of California Legislation earlier this year to advocate adding a BSRC as one of the minimum requirements for technical consulting. This would alleviate physicians from performing competencies on RCP's who expertly know the inner workings of the lab and lab compliance. We're confident that trained RCPs are competent in running blood gases and assessing for erroneous results while BSRC's trained in blood gas labs can expertly fill the role of a technical consultant. This will improve rapid access to results and provide safe patient care.

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Volume 25, Issues 3 & 4							
Title (Click on title to open the manuscript)	Journal Section	First Author	Year	Vol	Issue	Pages	Date Posted
The Potential Dangers of Quality Assurance, Physician Credentialing and Solutions for Their Improvement (Review)	General Medicine	Robbins RA	2022	25	4	52-58	10/17/22
Epiglottic Calcification: The Unexplored Relationship with Increasing Rates of Renal Disease	Correspondence	Ibrahim R	2022	25	4	50-51	10/10/22
October 2022 Medical Image of the Month: Infected Dasatinib Induced Chylothorax-The First Reported Case	Imaging	Mohammed M	2022	25	4	47-49	10/2/22
October 2022 Critical Care Case of the Month: A Middle-Aged Couple "Not Acting Right"	Critical Care	Robbins RA	2022	25	4	43-46	10/1/22
September 2022 Medical Image of the Month: Epiglottic Calcification	Imaging	Punatar S	2022	25	3	41-2	9/2/22
September 2022 Pulmonary Case of the Month: A Sanguinary Case	Pulmonary	Abdalla A	2022	25	3	37-40	9/1/22

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