

Centers Capable of Treating Hyperbaric Emergencies in the United States

June, 19 2014

Previous Work: Centers in CA by Patient Acuity

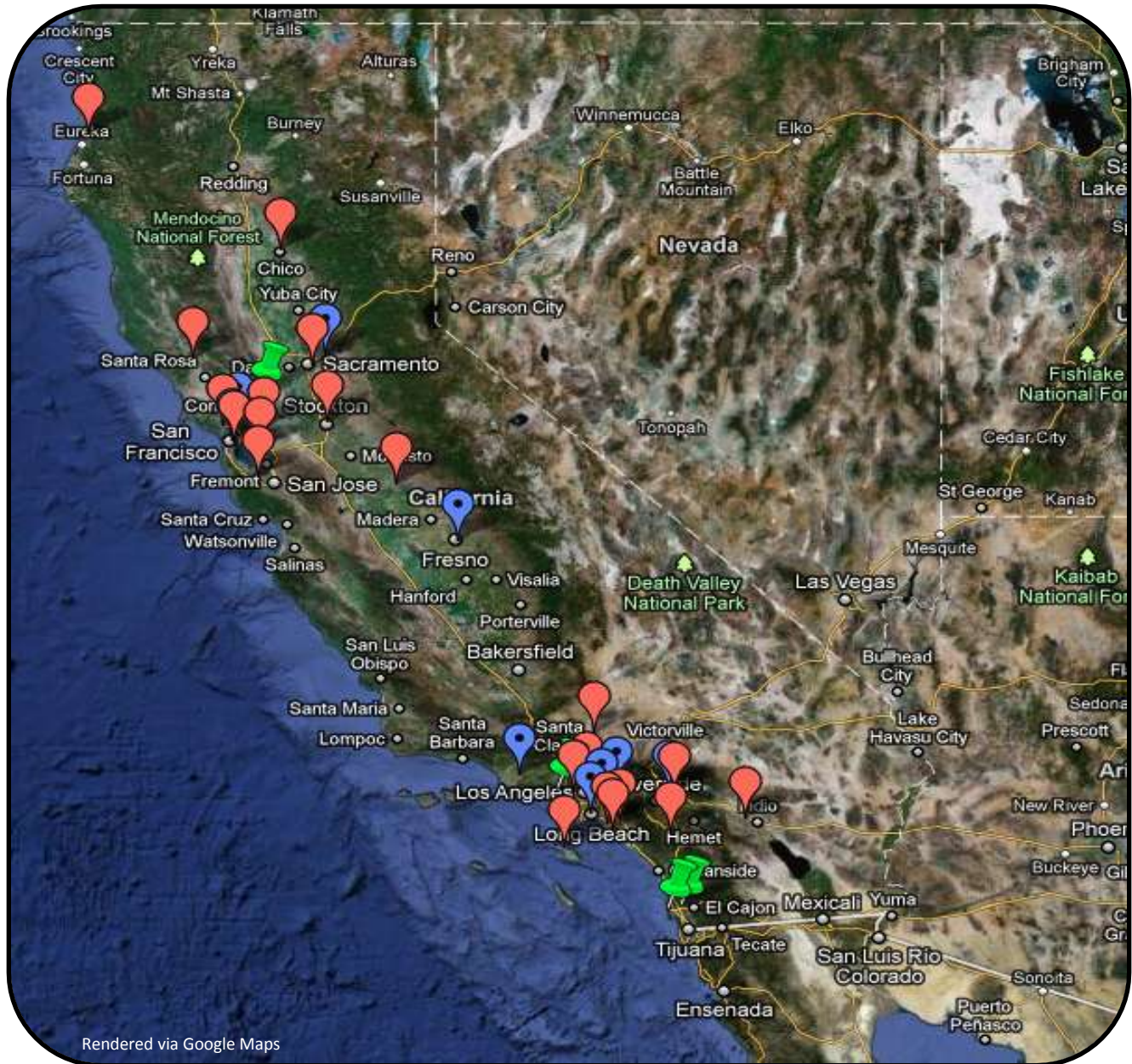
Do Not treat
life/limb-
threatening
HBOT
emergencies

Monoplace

Do treat
life/limb-
threatening
HBOT
emergencies

Multiplace

Do treat
life/limb-
threatening
HBOT
emergencies





Background: CA HBO Model

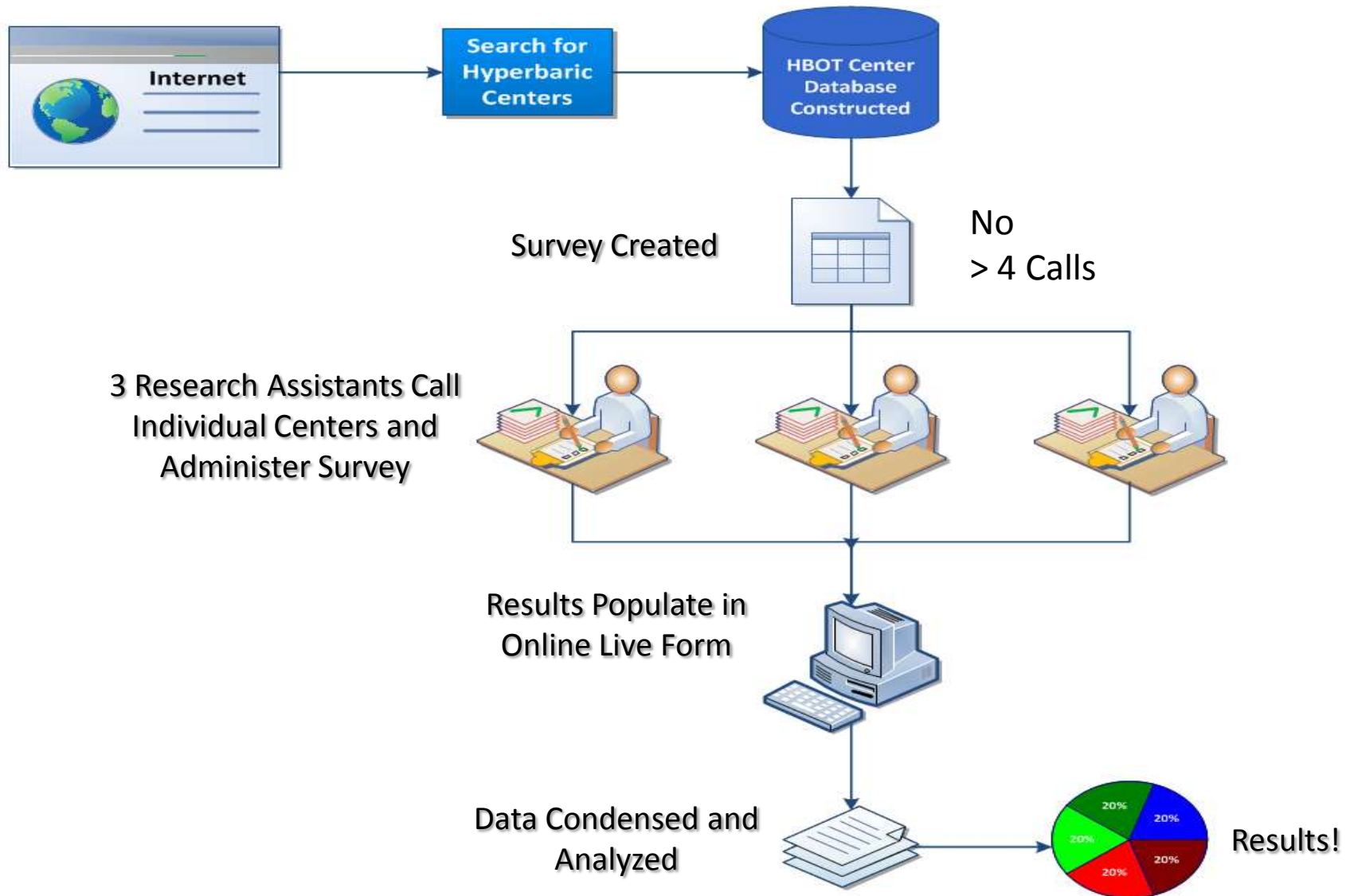
- California
 - Only 10 HBO centers capable of treating HBOT emergencies:
 - DCS
 - AGE
 - CO Poisoning
 - HBO center scarcity requires frequent transit via Medivac
 - Causes delays
 - Increases costs
 - Increases risk for staff and patients
 - Overall:
 - HBOT emergency patients in CA have increased risk of negative outcomes



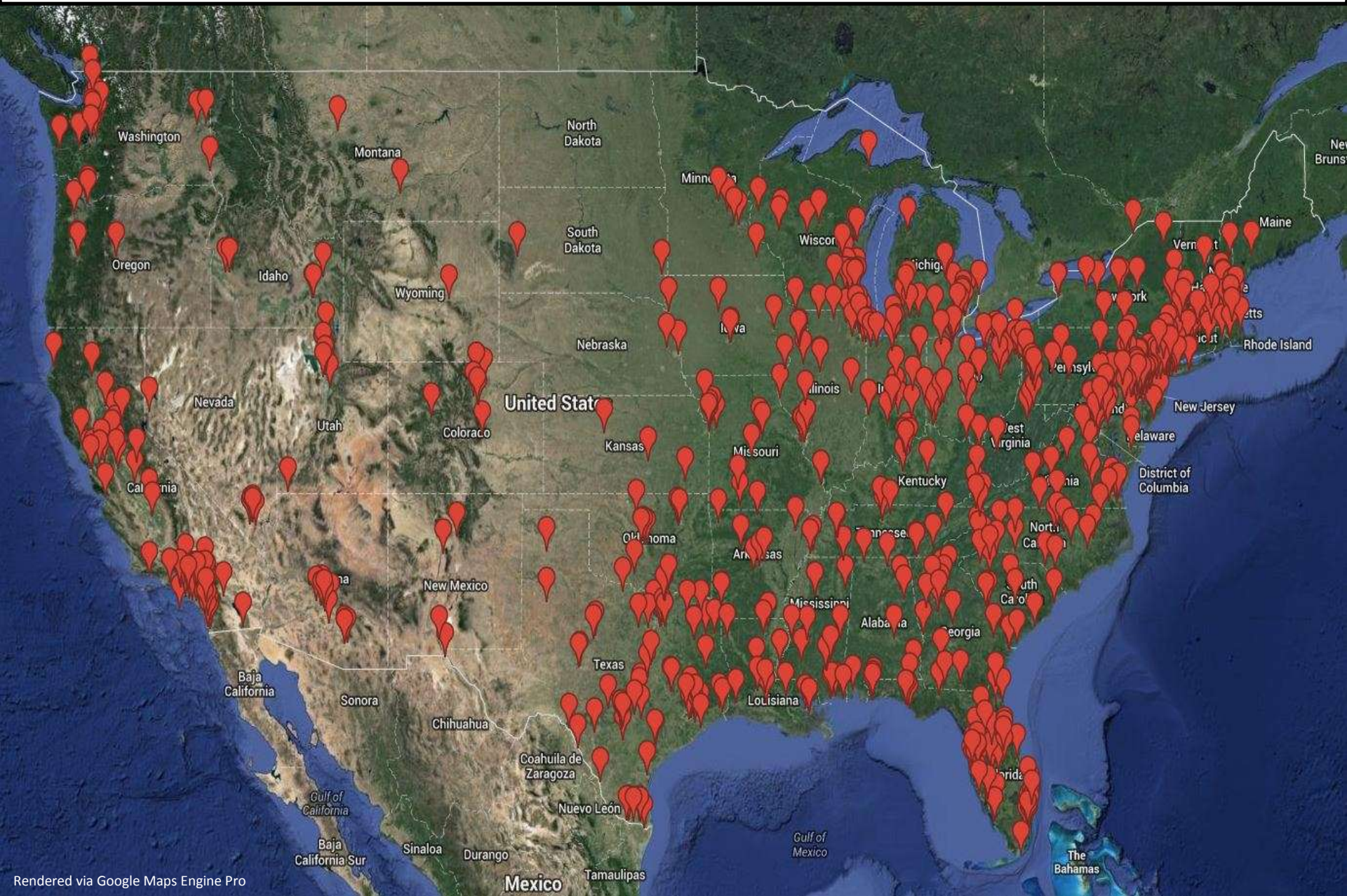
Research Questions: Applied Nationwide

1. What centers are treating life/limb-threatening hyperbaric emergencies?
2. Where are they located?
3. Can we identify limiting factors hindering a center's capacity to treat hyperbaric emergencies?

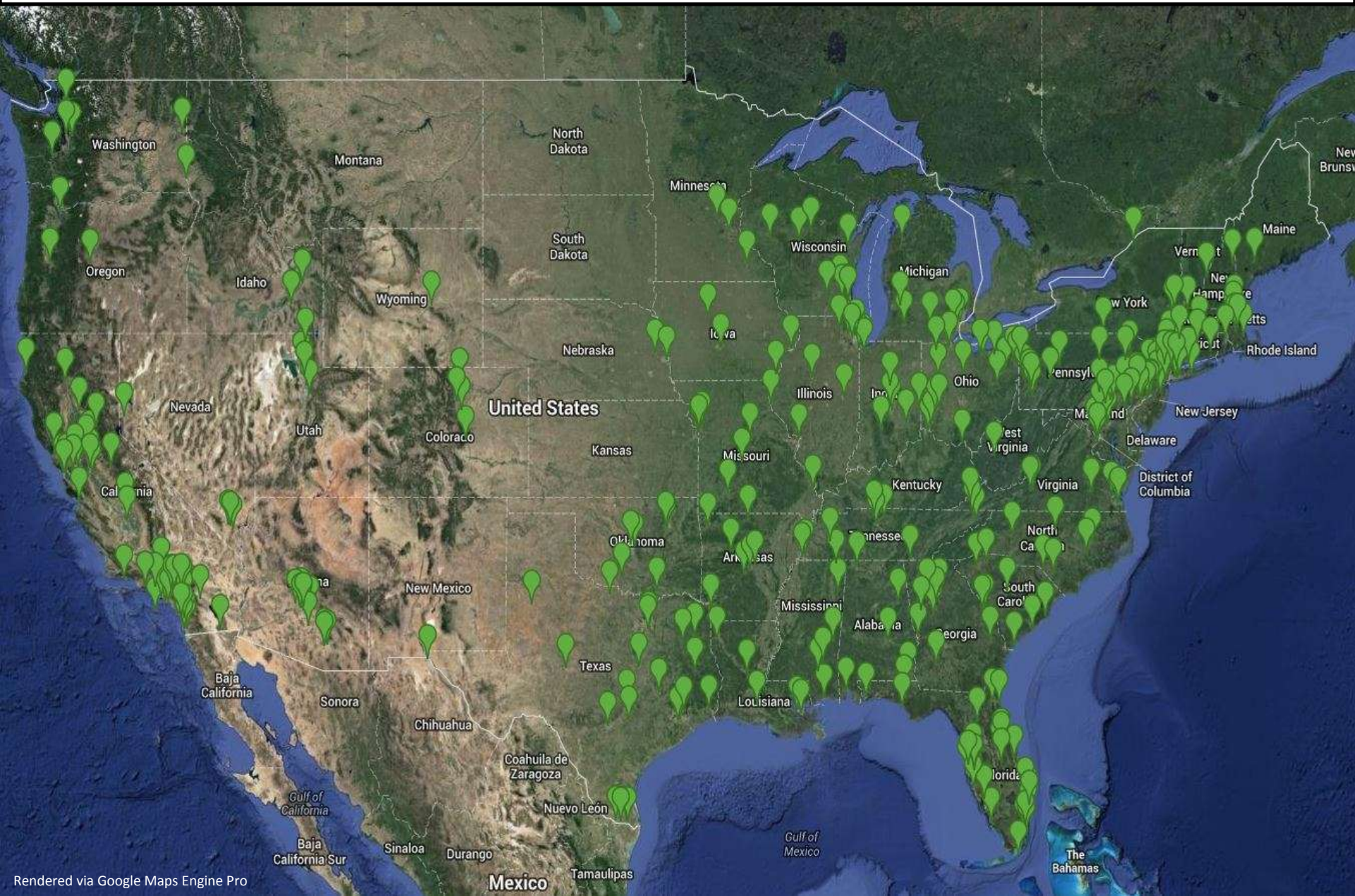
Methods



All Centers Surveyed (N = 764)



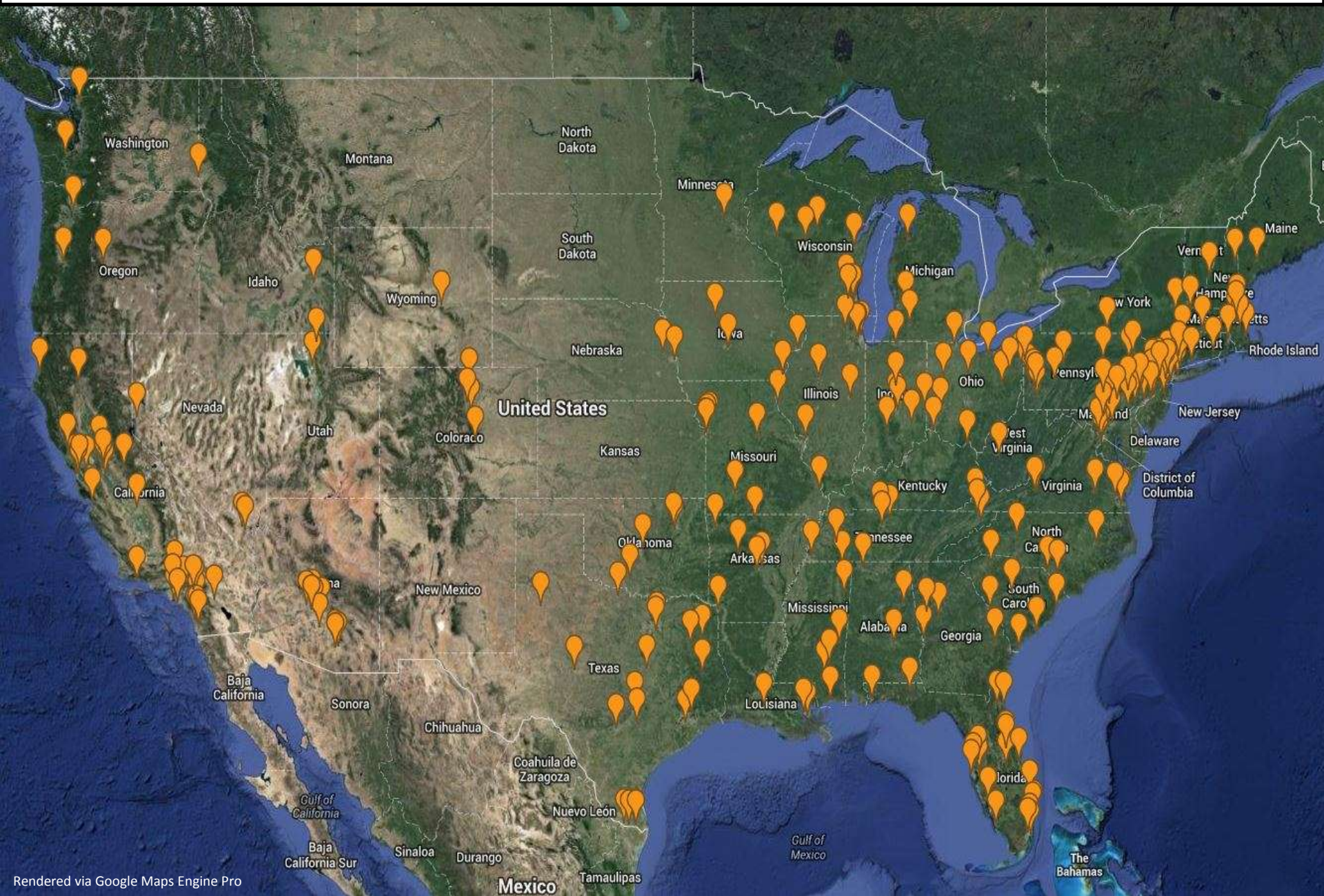
Centers Responded to Survey (N= 363)



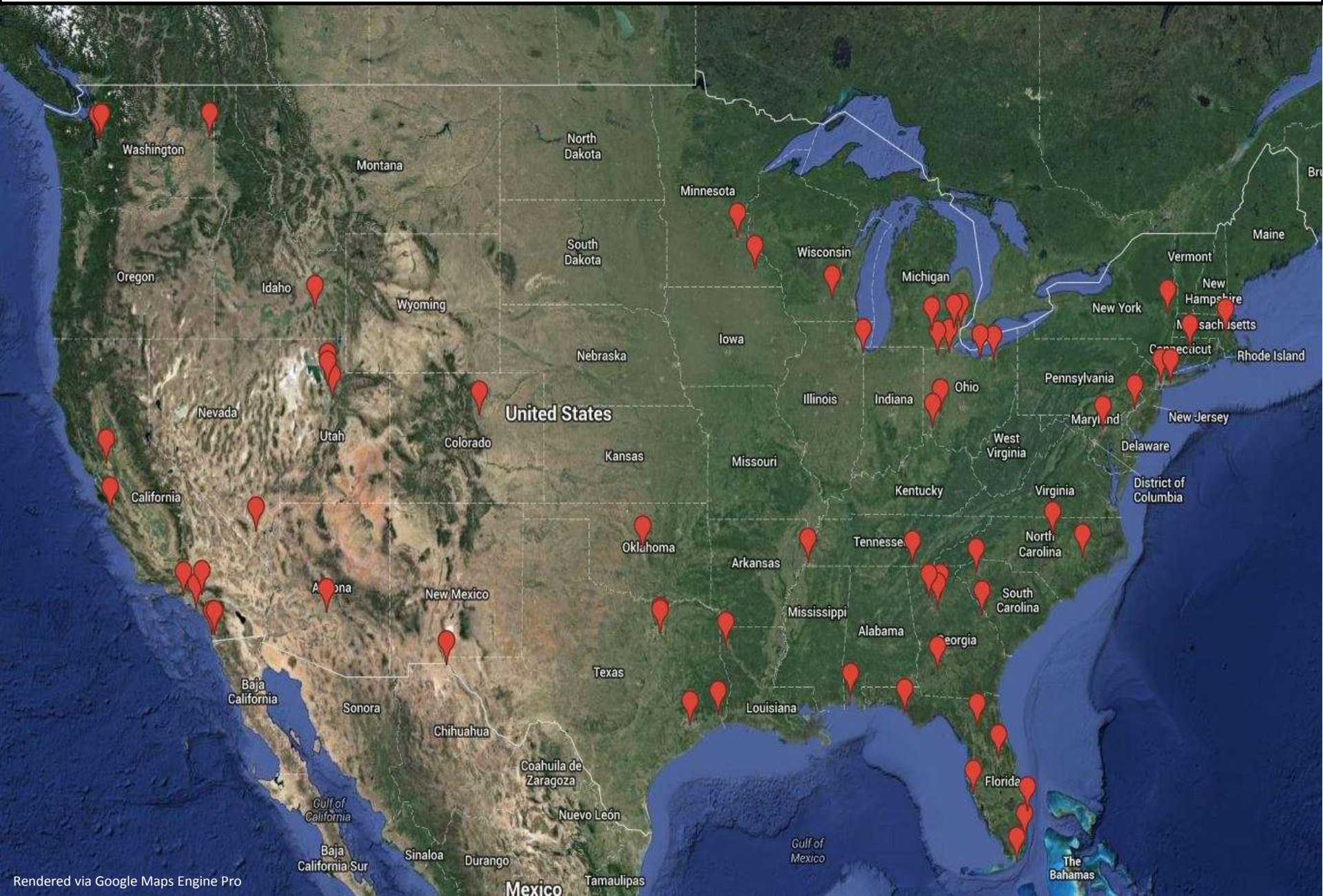
Results of Those Responding

Survey Question	Result	#Centers (N=363)	%Centers
Type of Center	Hospital Based:	248	68%
	Free-Standing Clinic:	97	27%
Type of Chamber	Monoplace:	290	80%
	Multiplace:	57	16%
	Both:	16	4%
Use of IV-Pumps During HBOT	Yes:	90	25%
	No:	273	76%
Use of Ventilators During HBOT	Yes:	71	20%
	No:	292	80%

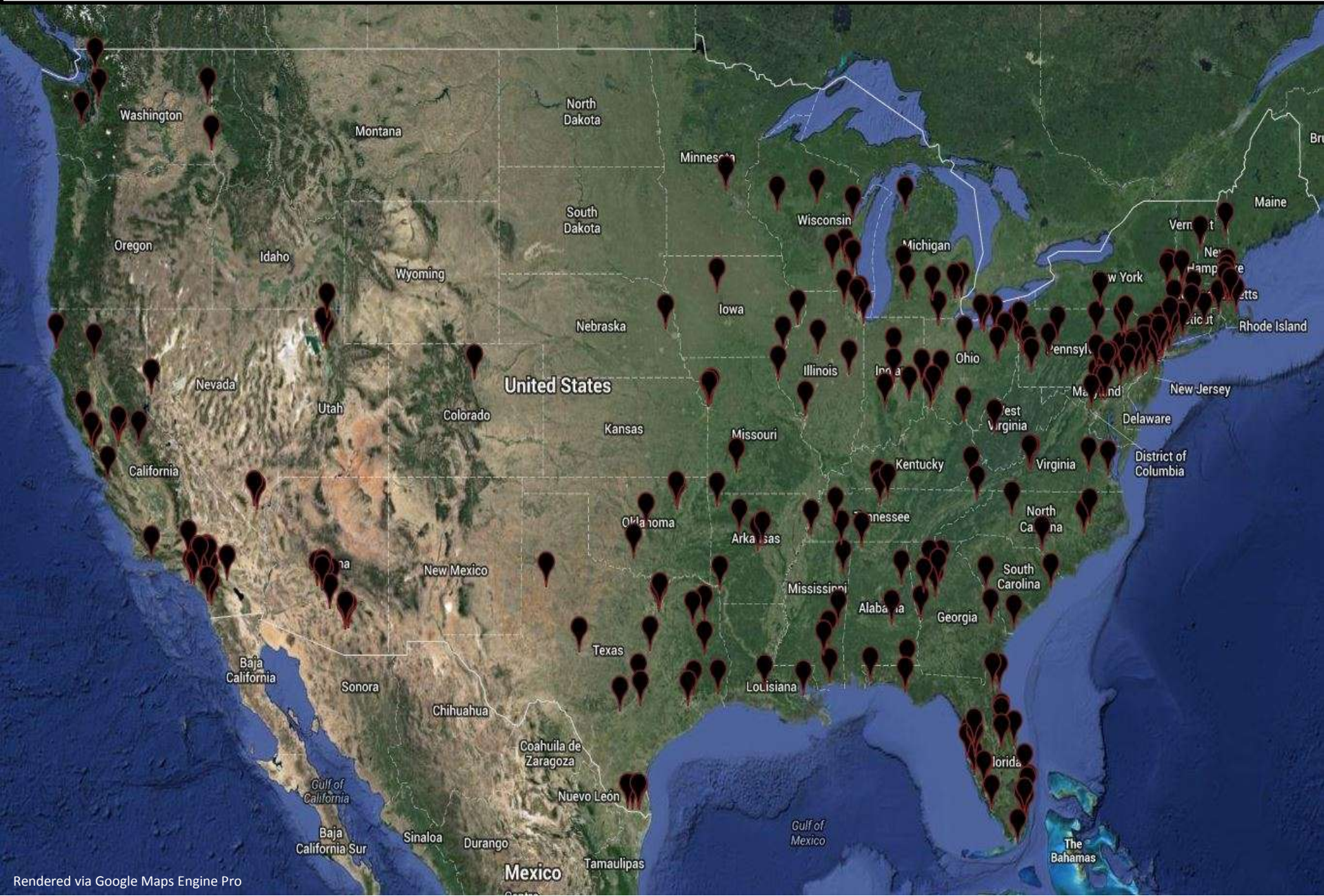
Monoplace HBO Centers (N = 290)



Multiplace HBO Centers (N = 57)



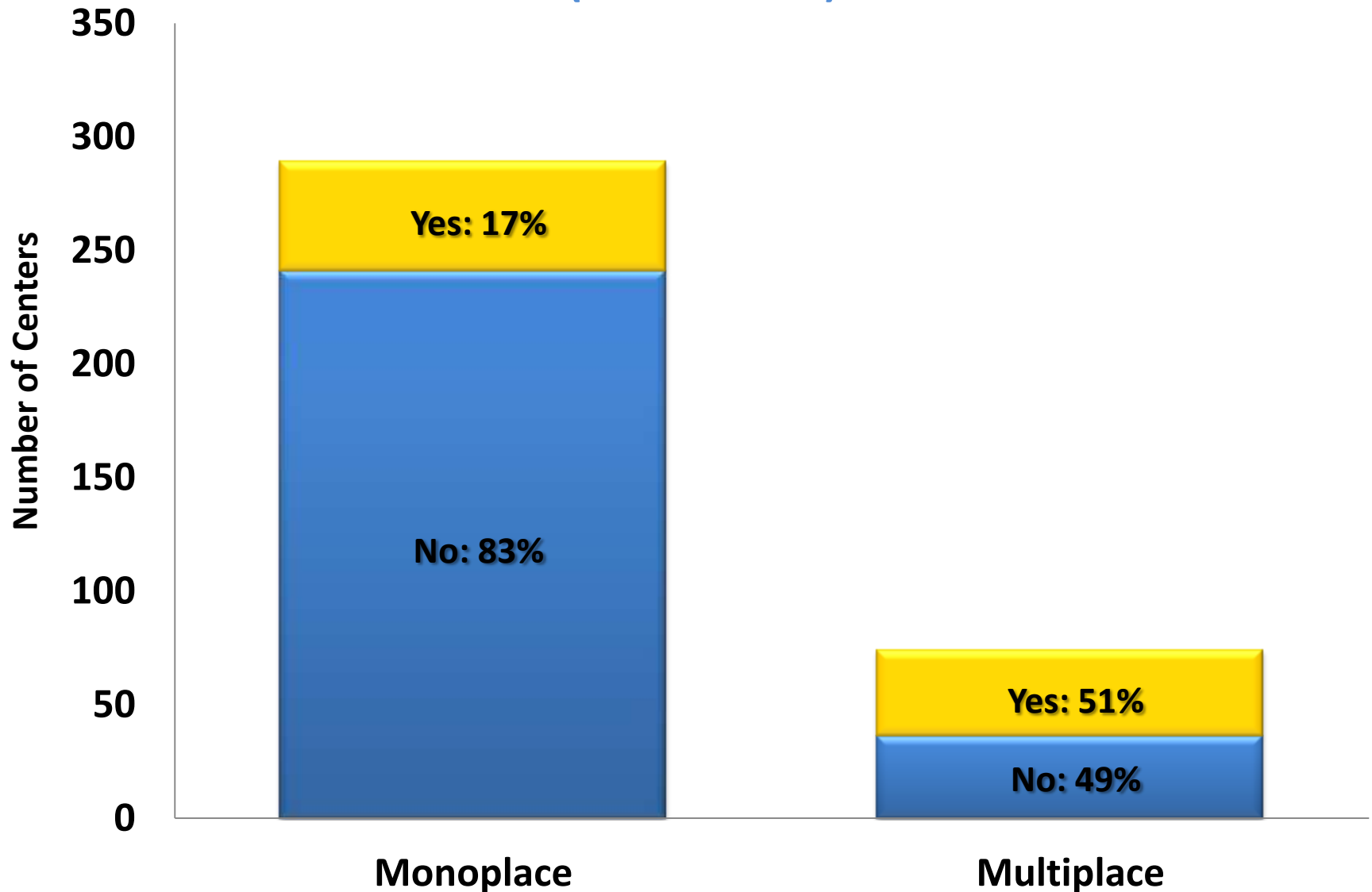
Do Not Treat HBOT Emergencies (N = 201)



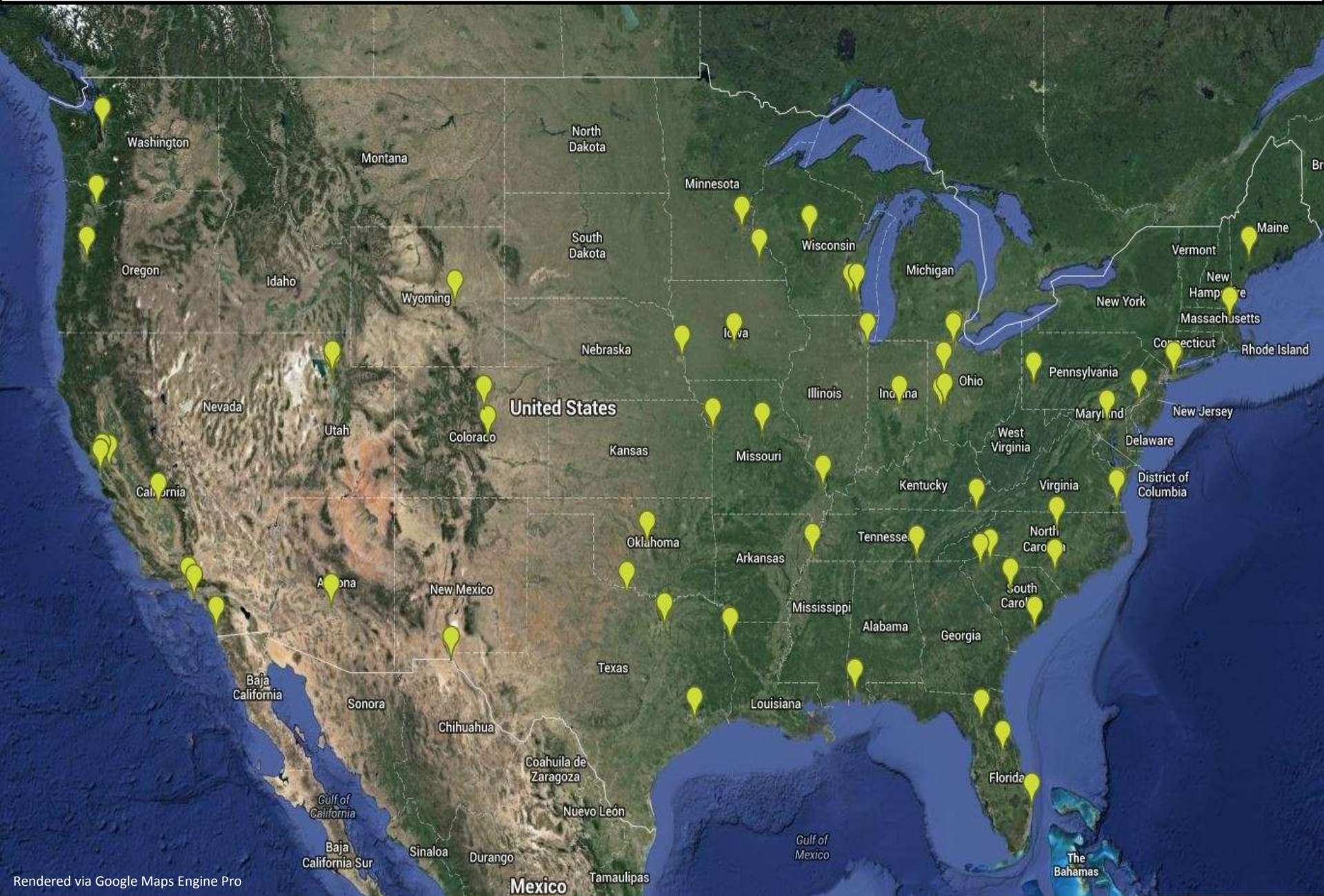
Treat HBOT Emergencies (N = 108)



Capacity to Treat HBOT Emergencies (N = 363)



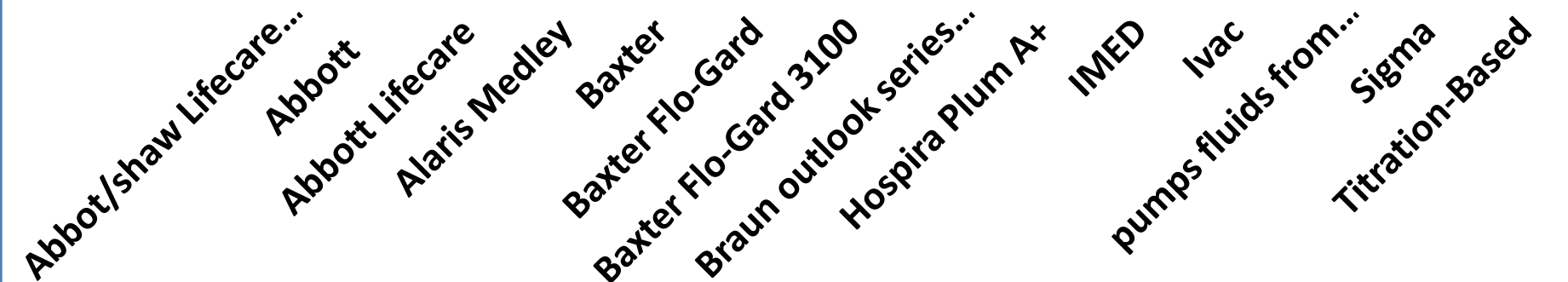
Centers Using I.V. Pumps HBOT (N =90)



I.V. Pumps Used During HBOT (N = 90)

Number of Centers Using I.V. Pump

30
25
20
15
10
5
0



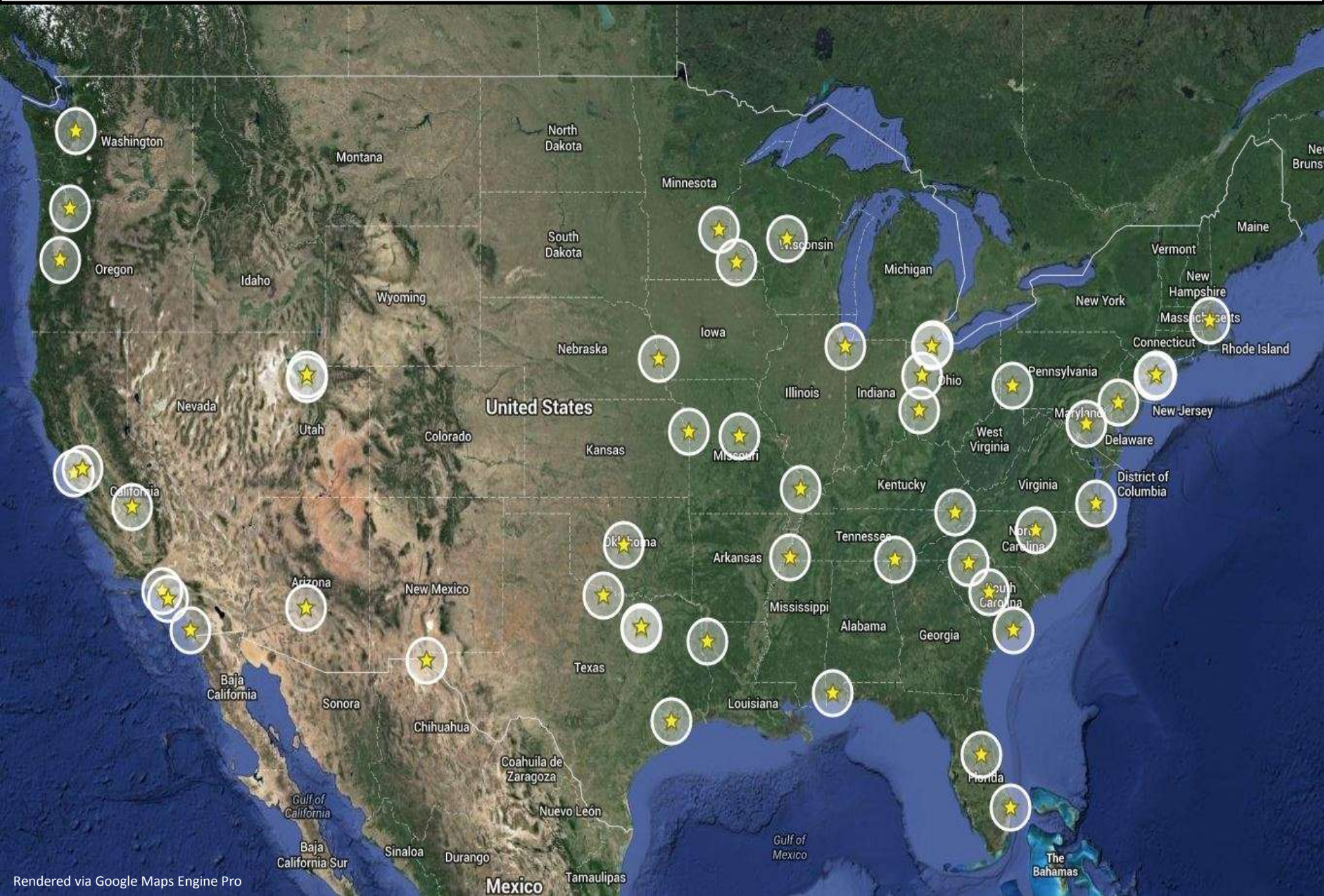
Centers Using Ventilators (N = 71)



HBO Center Emergency Criteria

- Uses I.V. Pumps during HBOT
- Uses Ventilators during HBOT
- Responded “Yes” to treating limb/life-threatening HBOT emergencies
- 24/7 on-call staff

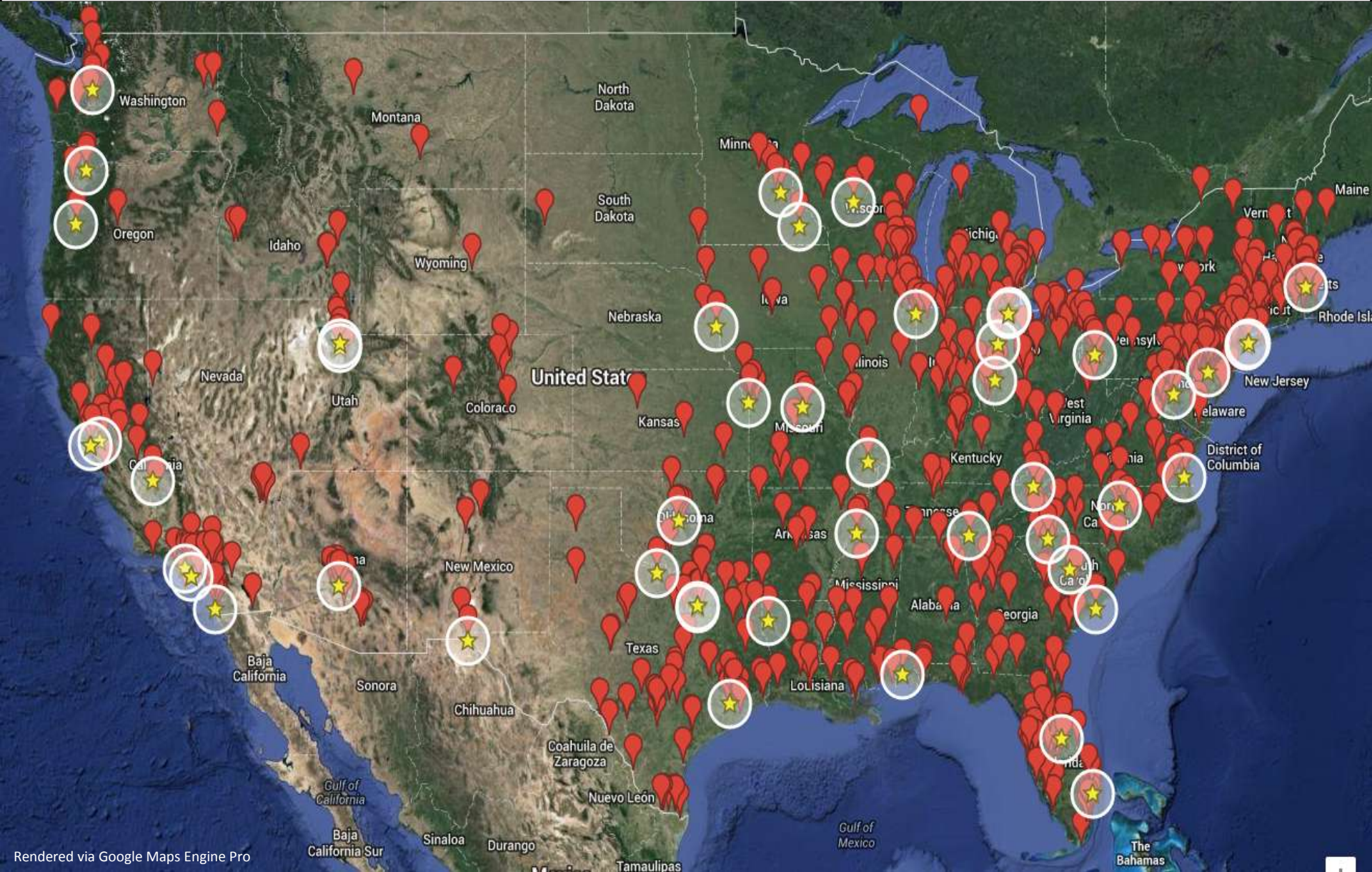
Centers Meeting Emergency Criteria (N = 44)



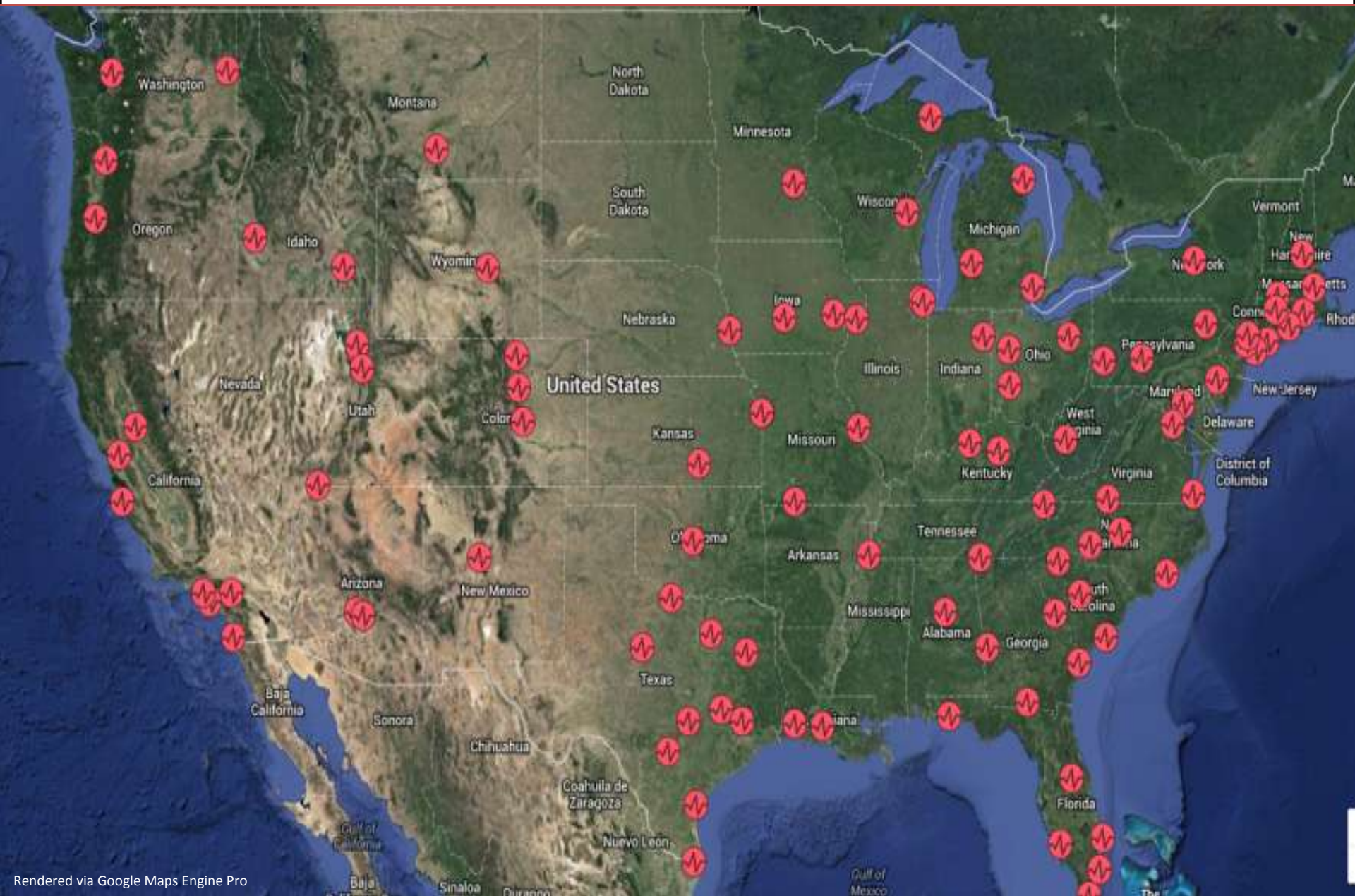
Centers That Do Not Treat HBOT Emergencies

Centers that Do Treat HBOT Emergencies	Centers that Do Not Treat HBOT Emergencies	Proximity	Density
44	143	20 miles	3 :1
	319	50 miles	0.25:1

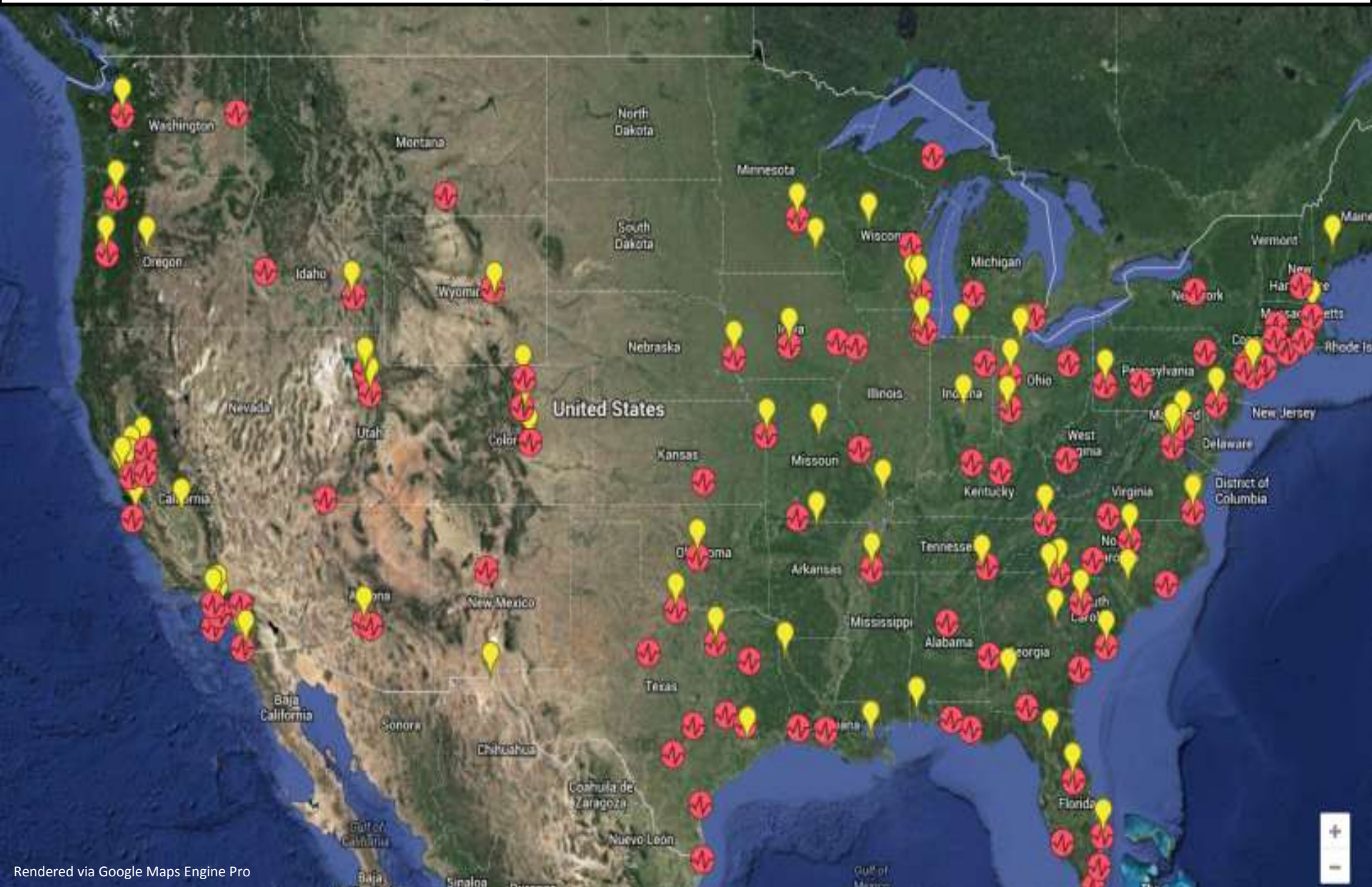
Centers Meeting Emergency Criteria (N = 44) vs. All Centers Surveyed (N = 763)



D.A.N. Centers (N= 111)



D.A.N. Centers (N= 111) vs. Centers Meeting Emergency Criteria (N=108)



Centers Treating DCS Emergencies

- Incidence of nationwide DCS: **3 in 10,000 dives (0.03%)**

Region	DCS Injury	DCS Fatality	Total DCS Cases	HBOT Center Meeting UCLA Emergency Criteria	DAN Center
Southeast	15	3	18	15	25
Southwest	24	12	36	11	18
Northeast	7	9	16	11	18
Midwest	6	6	12	18	20
Northwest	14	1	15	19	18

Meets all criteria Possible able to treat high acuity cases	Vents/IV's	Centers Responding Yes to treating divers and Emergencies	DAN centers
44	71	108	111

- Some centers do treat emergencies but are selective to acuity and types.
- Some centers do not treat any type of emergencies
- Some centers treat all types of emergencies
- Fluctuations in personal scheduling and time of year might also have an impact

Conclusion

- Our study included 764 centers
 - 363 responded to our survey
 - 290 Monoplace centers
 - 57 Multiplace centers
 - 263 Hospital-based centers
 - 97 Free-standing centers
 - 364 centers were within 100 miles of the U.S. coastline.

- Possible improvement on identification of through-put for facilities that want to treat emergencies
- Better understanding of when DSC/AGE/CO/CRAO or any other emergent HBOT cases occur. This could further address NEED.
- Identification of limiting factors
 - Equipment

Thank You