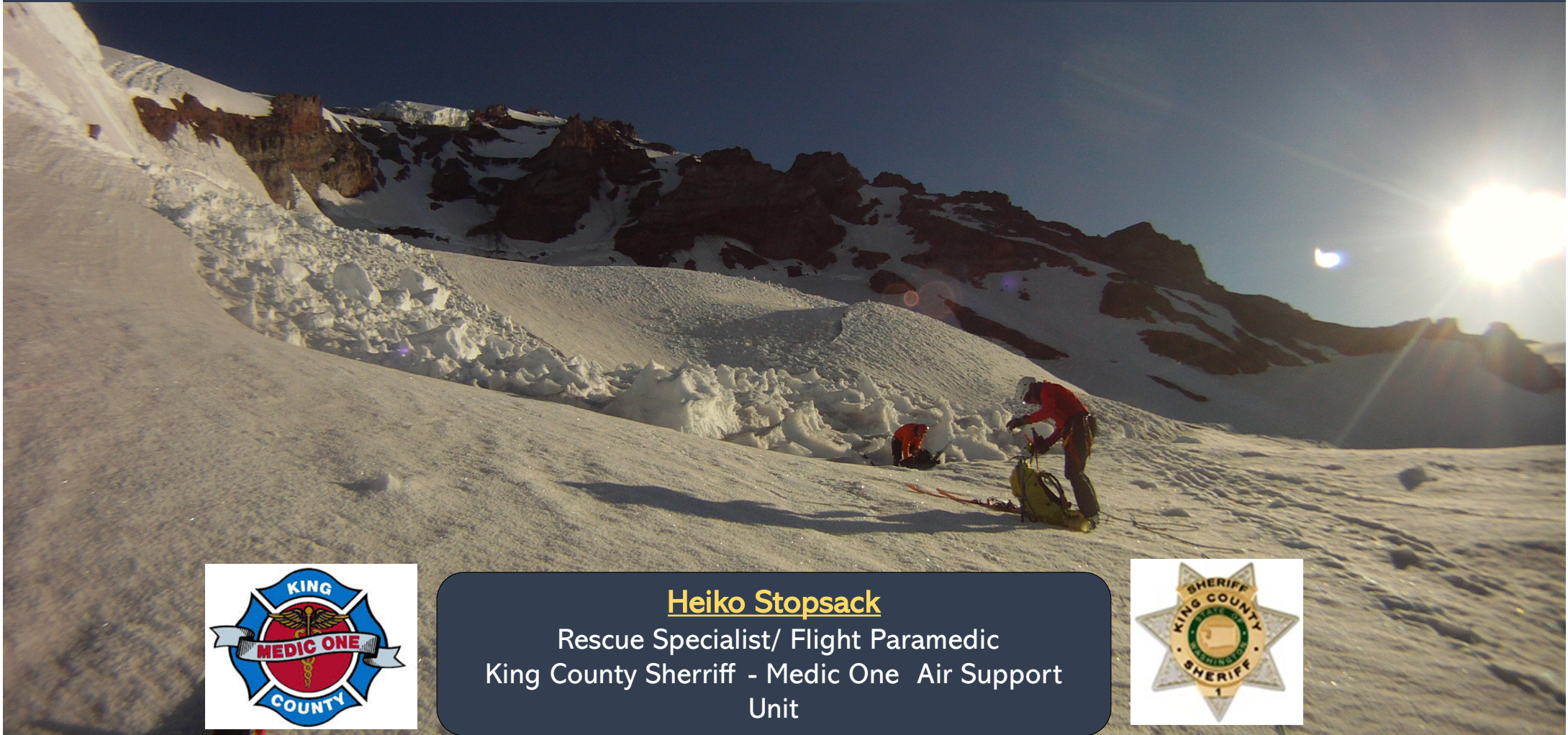


# Forging a Better Chain of Survival In Avalanche Terrain



**Heiko Stopsack**  
Rescue Specialist/ Flight Paramedic  
King County Sherriff - Medic One Air Support  
Unit









In memory of  
Kip Rand

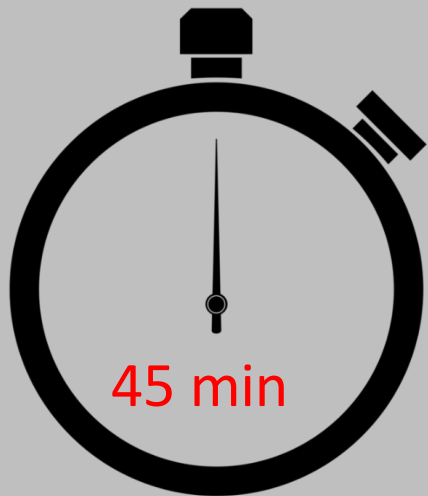
Former Director of  
The Wallowa  
Avalanche Center.  
U.S.A.

1986-2016





**In the U.S. Pacific Northwest Avalanche Rescues Happen in Remote Areas.**






# The Clock is Ticking.

Avalanche burial with air pocket.

*91% survival in under 18 minutes.*



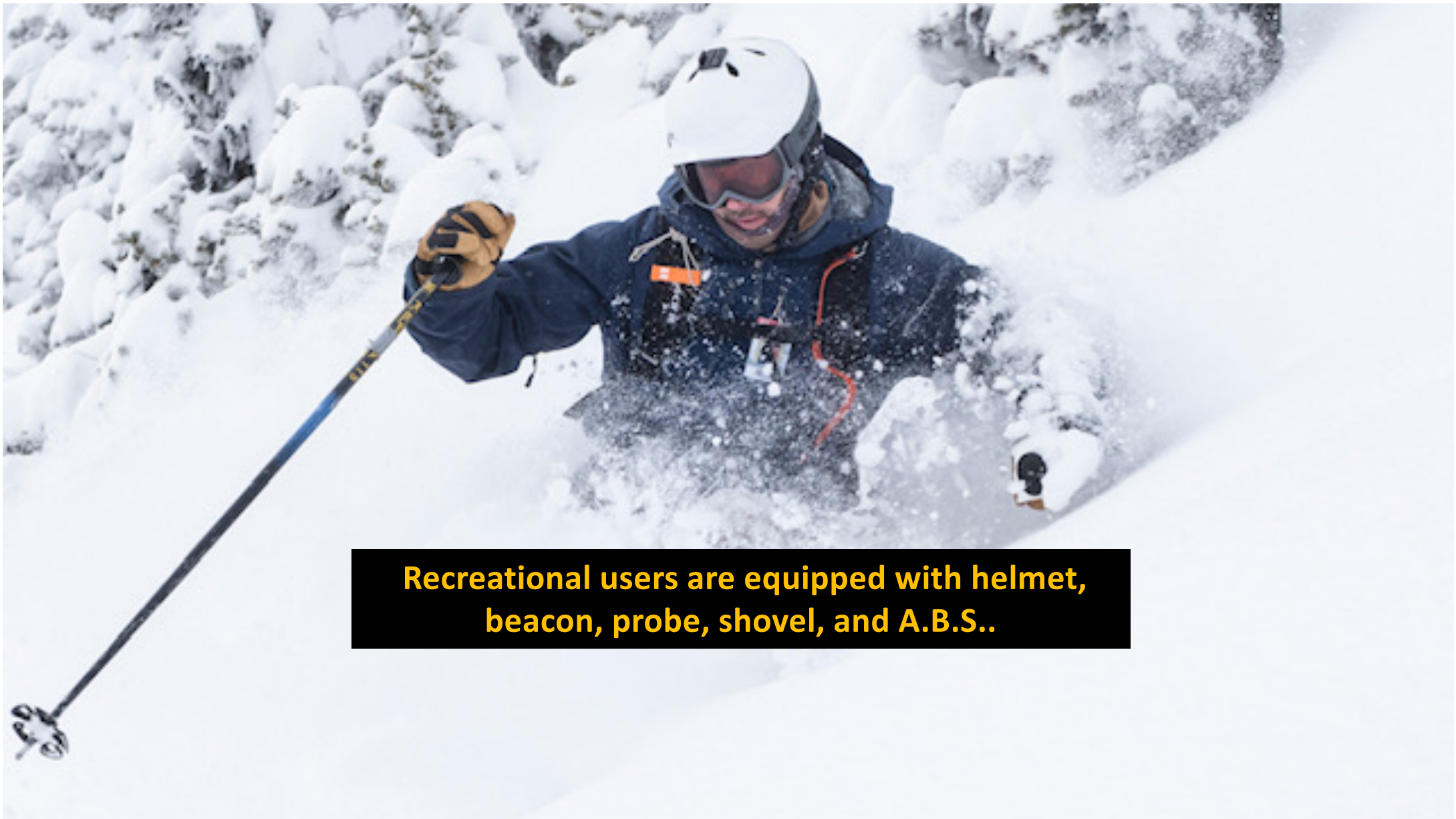




Is the recreational user fully prepared  
while in avalanche terrain?

Can we forge a better chain of  
survival?





**Recreational users are equipped with helmet, beacon, probe, shovel, and A.B.S..**



Educated in  
avalanche avoidance.





Rescue Skills





**When disaster strikes, there is a weak link in the chain of survival.**







**C.P.R.**

**Reanimacija**



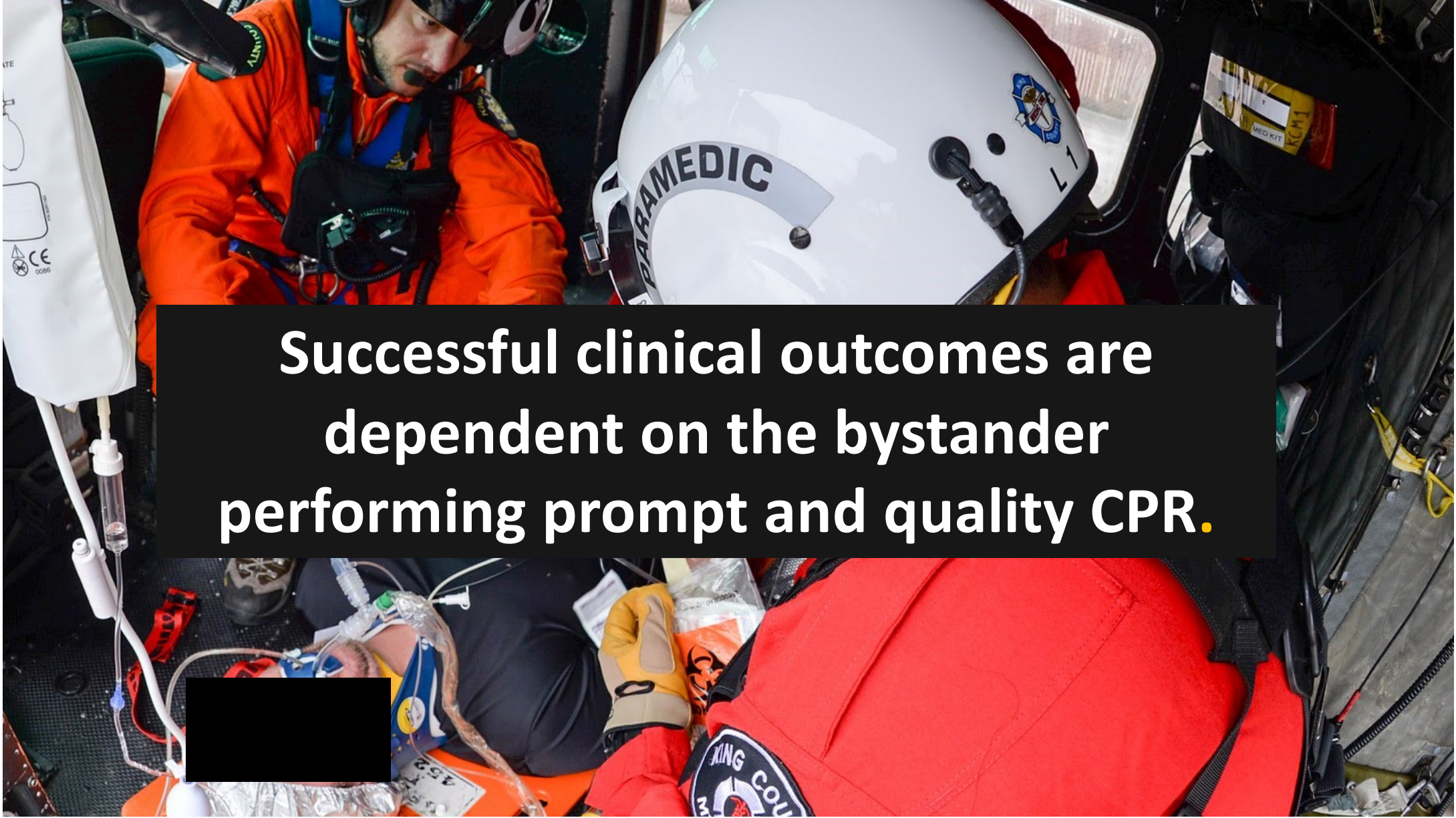
**Herz-Lungen-  
Reanimation**

**Réanimation  
cardiopulmonaire**



- Should avalanche rescue be treated the same as sudden cardiac arrest, as it is in the urban environment?
- If yes?
- Should ICAR recommend that all recreational avalanche rescue courses incorporate basic C.P.R. training ?





**Successful clinical outcomes are dependent on the bystander performing prompt and quality CPR.**





Patient ID

Time of avalanche \_\_\_\_ : \_\_\_\_

Face exposure \_\_\_\_ : \_\_\_\_

≤35 min (≥32°C)

Burial Time \_\_\_\_ min

(If unknown use core temp\*\*)

Vital Signs YES  NO

FIRST AID

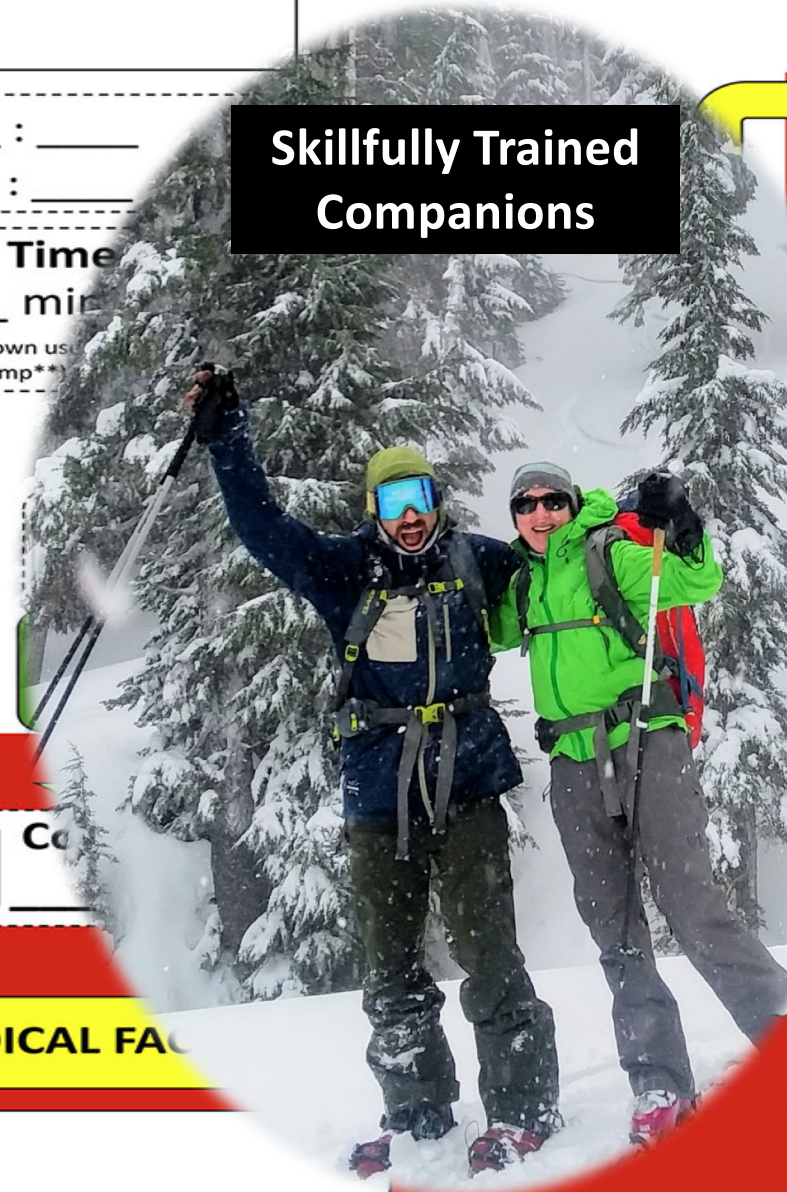
CPR \*\*\*

≥32°C Core Temp

APPROPRIATE MEDICAL FACILITY

ALS Provider Name:

Skillfully Trained Companions



AVALANCHE VICTIM RESUSCITATION CHECKLIST ©ICAR MEDCOM, 18.10.2013, Kottmann A, Blancher M, Spichiger T, Boyd J, Brugger H

ALS Provider

Obvious lethal trauma or body totally frozen YES  NO

TOP

Core Temp <32°C or unknown  \_\_\_\_ °C ≥32°C

ECG Asystole YES  NO  or unknown

APPROPRIATE MEDICAL FACILITY

Airway Patent YES  NO  or unknown

STOP


Long transport or multiple casualties YES  NO

ECLS facility

Serum K+ ≤12 mmolL<sup>-1</sup>  \_\_\_\_ mmolL<sup>-1</sup> >12 mmolL<sup>-1</sup>

STOP





Reducing time to  
accessing the airway and  
CPR is a priority.

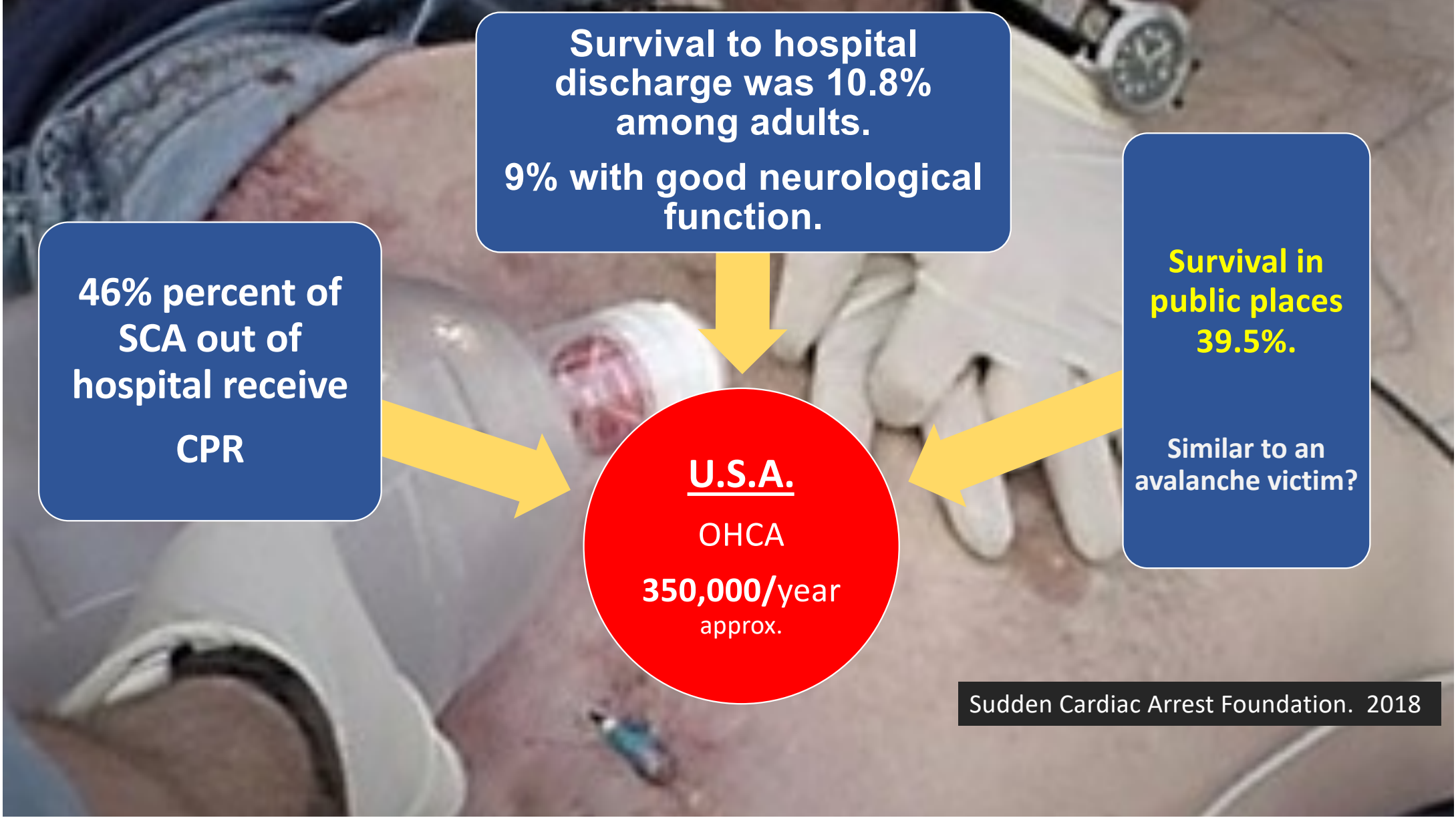
**10.1 minutes to get the victim in the CPR ready  
position.**

**Each subsequent scenario study participants times  
improved.**

*Avalanche Rescue-Precognition and Training to Improve...  
Wallner, Moroder, Brandt, ISSW 2018*







**Survival to hospital discharge was 10.8% among adults.**  
**9% with good neurological function.**

**46% percent of SCA out of hospital receive CPR**

**Survival in public places 39.5%.**  
**Similar to an avalanche victim?**

**U.S.A.**  
**OHCA**  
**350,000/year approx.**

**70 %** of King County O.H.C.A. received bystander CPR

- **56%** Utstein Group Survival: Survival to hospital discharge for arrests due to heart disease, witnessed by bystanders and presented with an initial rhythm of VF/VT.
- **22 %** for all other rhythms.





Can we do the  
same for the  
companion rescuer  
?







Experimental  
Courses.  
In my local  
community.

**Combined**

**Avalanche rescue 4 hrs.**

**First Aid/CPR 8 hrs.**

**24 Students.**





## Experimental Courses

- \* Realistic simulated burials with CPR mannequins.
- \* CPR for 6 minutes by students.
- \* 4 rescue scenarios performed.





Why Provide Realistic Training ?

**“System 1 Training”**

*Methodically learn all the steps.*

**Execute as one when faced with a rescue.**



# Proposed Curriculum

- **Standard Companion Avalanche Rescue Course.**
- **&**
- **Online single rescuer CPR course.**
- *(practical will occur on snow)*  
i.e. American Heart Assoc. Heartsaver is a 45 min. module.





*“Does practicing to locate, excavate, resuscitate, and evacuate a victim in an austere safe environment, affect your decision making, prior to traveling into avalanche terrain?”*

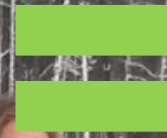
**YES ! Ja ! Oui !**



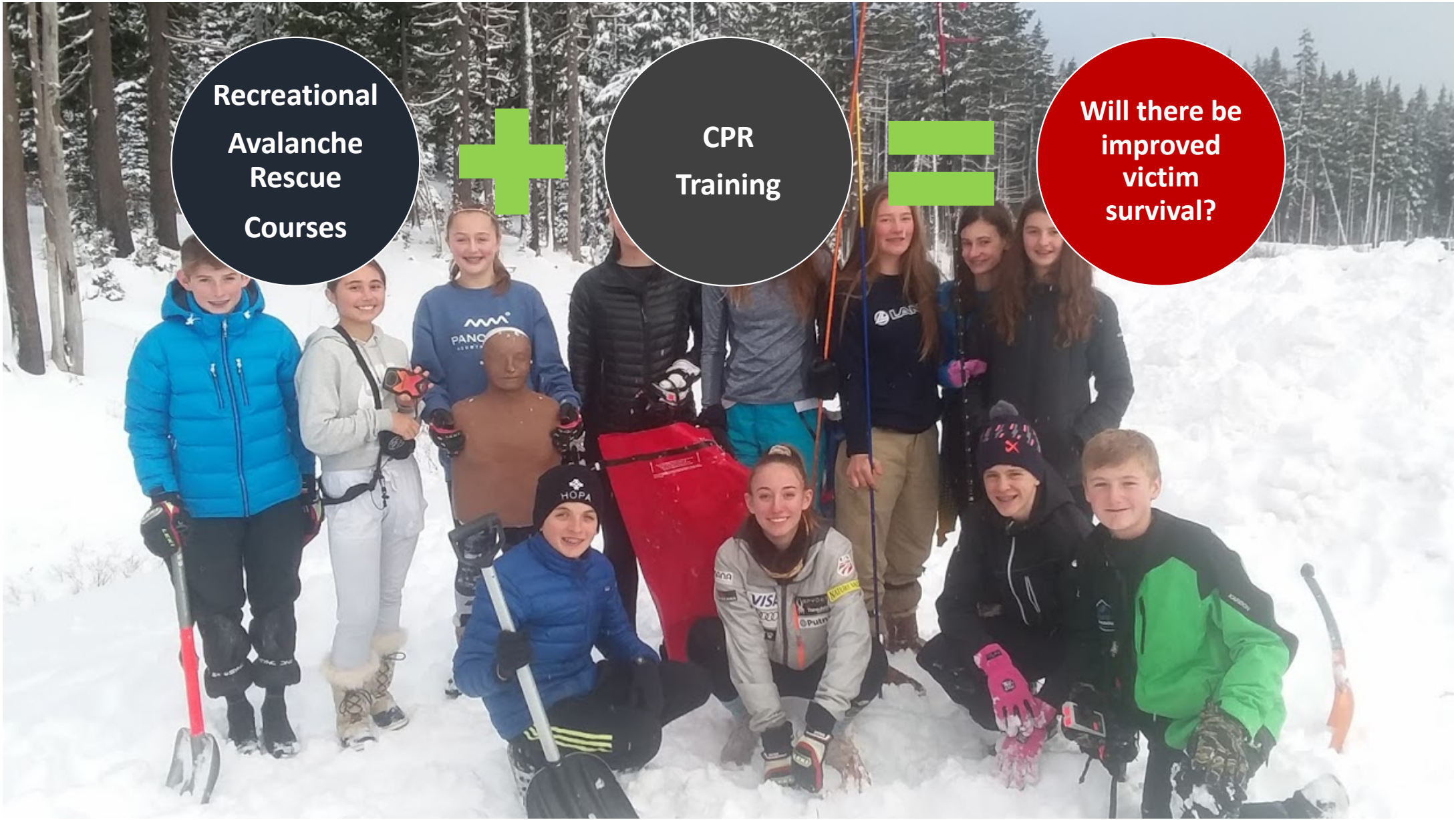
Recreational  
Avalanche  
Rescue  
Courses



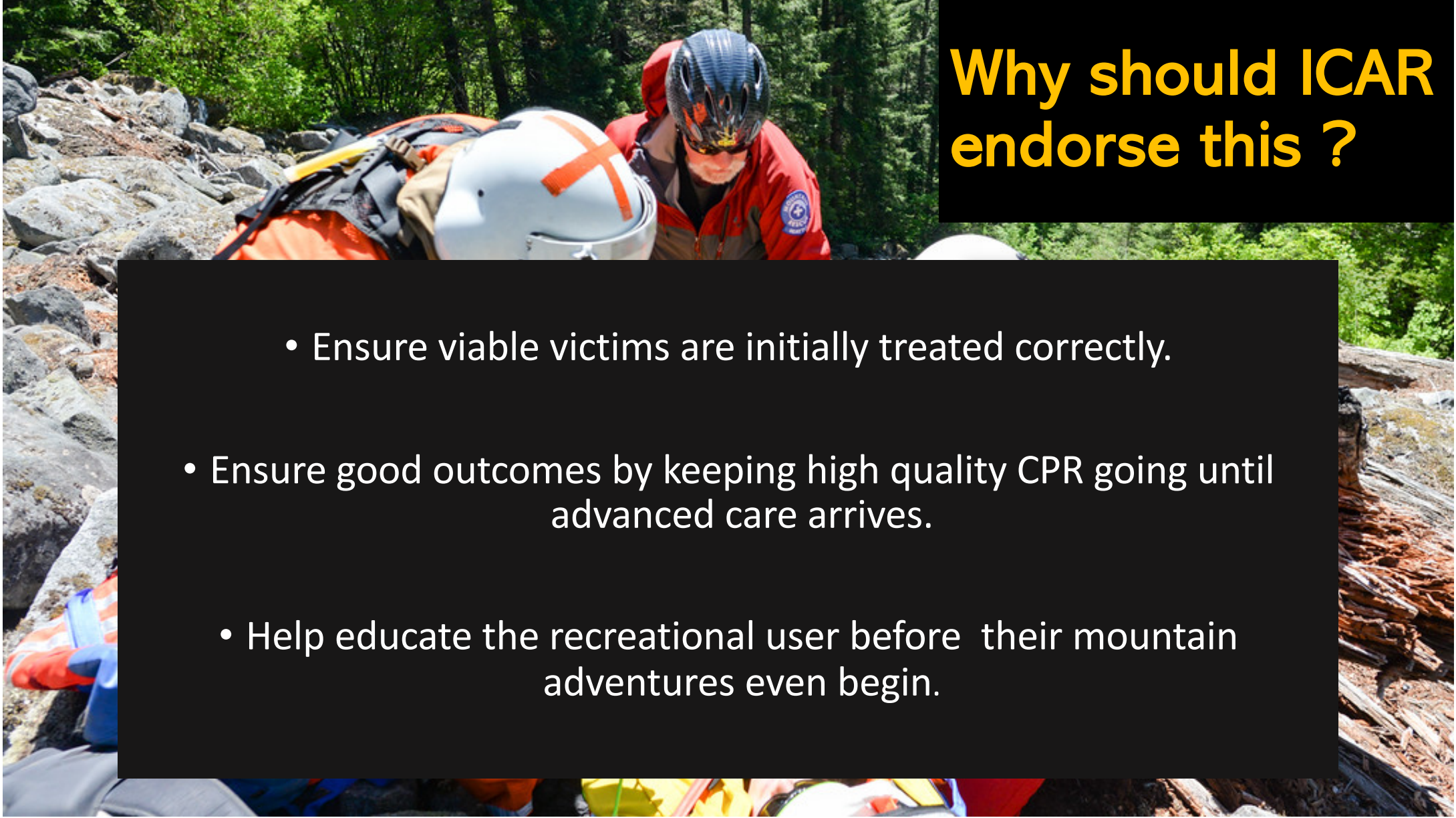
CPR  
Training



Will there be  
improved  
victim  
survival?





A rescue worker in a red jacket and helmet is attending to a victim on a stretcher in a rocky, forested area. The victim is wearing a white helmet with an orange cross. The scene is outdoors with many rocks and trees in the background.

## Why should ICAR endorse this ?

- Ensure viable victims are initially treated correctly.
- Ensure good outcomes by keeping high quality CPR going until advanced care arrives.
- Help educate the recreational user before their mountain adventures even begin.





Thank You!

