

NZSki AVALANCHE

EMERGENCY PLAN

Issued by	GM Technical Operations		
Next review:	Annually or as otherwise required		
Distribution:	NZSki Intranet, Patrol, admin, management, lifts		
Change History:	Updated By:	Approved by:	Changes made:
2019	MH Patrol		Review and update previous documents
05/06/20	Dan Ross H&S Tom Stubbs- Patrol HOD	J McKenzie- SAM	Update Procedure Flow Chart. Format. Review process and update as per group SAM/GM team discussion.
27/06/21	Connor Glynn- Snow Safety Officer MH	J Urquhart GMO	Updated contact list, phone numbers & operational search dogs in plan. Removed all references to The Remarkables, Coronet Peak & Queenstown
13/12/2022	GMOs, SAMs	GMTO	Align all three mountains to one NZSki document. Removed the avalanche paths. Mountain Manager changed to "Duty" Manager, removed contact details to create one big Emergency Contact List. Accident Site Controller (ASC) is consistent across
June 2023	RE SSO	RE SAM	Addition of avalanche protocols
May 2024	RE SSO/ GMs	GMTO	Annual review. Minor updates in red below

Table of Contents

1. OBJECTIVE.....	2
2. AVALANCHE RESPONSE FLOW CHART.....	3
3. AVALANCHE RESCUE PROCEDURE CHECKLIST.....	4
4. AVALANCHE WITNESS FORM.....	6
5. DECISION MAKING IN AVALANCHE RESCUE.....	7
Probability of Survival Time frame	8
6. AVALANCHE RESCUE EQUIPMENT.....	9
7. INSTRUCTIONS FOR ACCIDENT SITE CONTROLLER.....	11
8. INSTRUCTIONS FOR 1 st PARTY LEADER.....	12
9. INSTRUCTIONS FOR 2 nd PARTY LEADER.....	13
10. LOCATION FLAG COLOURS	14
11. MEDICAL TRIAGE AND CONSIDERATIONS	15
12. INSTRUCTIONS - ADMIN/INCIDENT MANAGEMENT TEAM.....	17
13. COMMUNICATION LOG	18

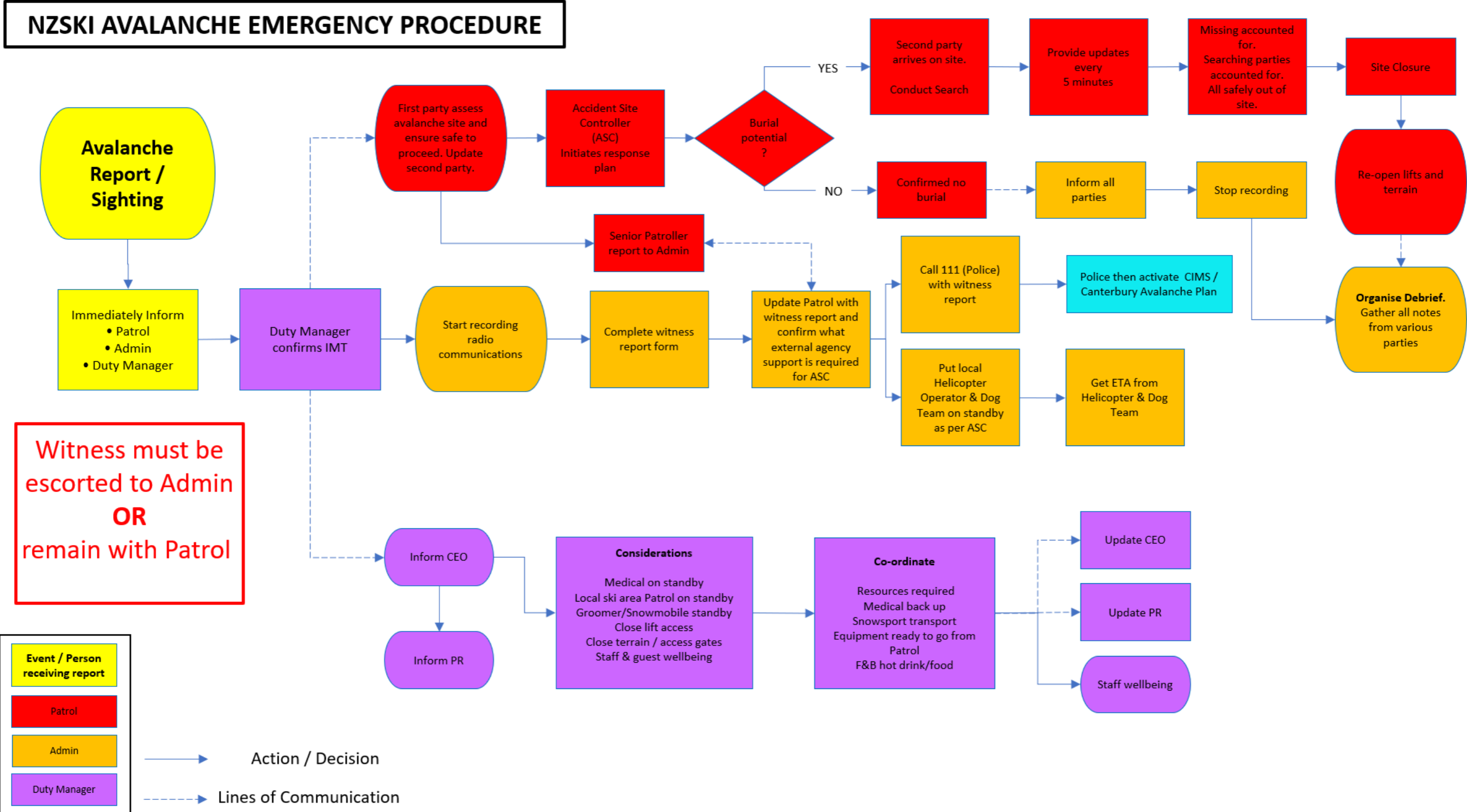
1. OBJECTIVE

The following pre plan has been devised to give the user the relevant information to conduct a rescue operation for an IN-BOUNDS avalanche at NZSki fields (Mt Hutt, Coronet Peak and The Remarkables).

Avalanche rescue is based on a formula of a quick well organised response in order to achieve the goal of a patient extraction from avalanche debris. As seen in the principles of avalanche rescue chart (see section 5) a patient's survivability decreases rapidly with time buried. In the early stages of a rescue operation NZSki patrol will occupy primary roles in an avalanche rescue and the Incident Management Team (IMT).

With the activation of the rescue plan, NZ Police will be notified and take the position of lead agency. Pre-approval of helicopters has been granted by NZ Police for use in avalanche rescue due to the nature and time frame for success.

2. AVALANCHE RESPONSE FLOW CHART



3. AVALANCHE RESCUE PROCEDURE CHECKLIST

ALL DETAILS TO BE FILLED OUT AND TICK OFF AS YOU GO AND TIMESTAMP EACH SECTION

Admin informed of Avalanche	Time:
<ol style="list-style-type: none"> 1. Turn on recorder 2. Fill in Avalanche witness form 3. Keep witness with you 	

Admin to notify Patrol of Avalanche (or they alert you)	Time:
SENIOR PATROLLER MUST COME TO ADMIN IMMEDIATELY	
Name of patroller notified:	

Admin to inform Duty Manager (or they alert you)	Time:
Name of Duty Manager informed:	

Duty Manager Initiate Incident Management Team (IMT) IN EMERGENCY ROOM	Time:
Scribe:	
Names:	

Patrol to appoint 1st party leader
Name:
<i>(This person will assume the role of Accident Site Controller (ASC) in initial response)</i>

ASC to dispatch First Party Response Team	Time:
Names:	

ON CONFIRMATION THAT EMERGENCY RESPONSE PLAN HAS BEEN INITIATED FROM ACCIDENT SITE CONTROLLER OF ACTUAL AVALANCHE

Admin to call 111	Time:
<i>(using information from Avalanche witness form)</i>	
<ul style="list-style-type: none"> • Introduce yourself- "I am (manager or patrol management) From [Mt Hutt, Coronet, Remarkables} Ski Area near [Methven OR Queenstown]." • "I am reporting an avalanche that has occurred [at]/ [in the backcountry near] of [name] Ski Area." • We are initiating a response as per our [Canterbury Winter Response Plan, authorised by the Police] OR [agreement with local police]. • Give them direct Admin Phone line MH: 03 307 6299, RE&CP: 03 442 4615 	

Contact Helicopter Companies (see NZSki Emergency Contact List) & dog team to put on standby	Time:
---	--------------

• Give them direct phone line for admin	
---	--

IMT prompts for ASC	Time:
Initiate medical team response	
Initiate Dog Search team response (VIA POLICE – SEE AVO DOGS LIST IN Emergency Response Contact List)	
Contact other ski areas patrols (<i>N/A for Mt Hutt</i>)	
Put Skidoo and Groomer Operators on standby	
Put Ski School on hold for probe team members	

ASC to update IMT once on scene and request resources	Time:
Resources required:	

IMT to appoint second party leader and dispatch team (<i>as required</i>)	Time:
Leader:	
Patrollers:	
Medical:	
Dog Team:	

Initiate site updates every 5 min

IMT to gather further resources	Time:
Skidoo and Groomer Operators on Standby	
Ski school on standby to for probe lines	
Equipment catches ready for transport (at patrol)	
Hot food & drinks – arrange with F&B	

Decide on closing lifts/road	Time:
-------------------------------------	--------------

ASC to continue to coordinate on scene operation, using all necessary resources until released by a higher authority, i.e. The Police

IMT to liaise with police and external resources
NZ Police will adopt the lead agency role
Continue to offer help and resources
Police mat set up or add to IMT

Completion of Search	Time:
All missing parties accounted for	
All equipment and search parties accounted for	
Manage safe exit of the site	

ASC confirms the site has been cleared and all searchers have clear and accounted for	Time:
--	--------------

4. AVALANCHE WITNESS FORM

Avalanche Witness Form	
Name of Witness	
Cell phone #	
Location of avalanche	
Time of avalanche	
Time now	
Number of people caught in the avalanche	
Witness location	
<p>Any other important information</p> <ul style="list-style-type: none"> • Ask if witness knows people caught • Do they have transceivers? • Were the people caught skiing or snowboarding? • Is the witness able to provide a last seen point? • Can they draw a diagram of the avalanche and where people were last seen in it? 	
Witness Contact Details	
<p>It is important to be able to gather an appropriate location for the witness and to ask them to remain until a member of staff is able to meet them. During a rescue operation members of the search teams may seek further information or clarification on what was witnessed. It is also likely the police will need a statement.</p>	

5. DECISION MAKING IN AVALANCHE RESCUE

Avalanche rescue is a time critical operation that relies on early detection and retrieval of any persons buried under the snow. The below graph outlines the time frame and survival rate along with a description of these phases in avalanche rescue.

The NZSki sites have upward of 200 combined known avalanche paths within the ski area boundaries. The management of these avalanche paths are conducted by the NZSki Ski Patrol under the supervision of the Snow Safety Officer this is further explained in the Site Specific Snow Safety Plan.

In the event of an inbounds avalanche the Site Specific Avalanche Rescue Plan is activated. The basic function of this plan is to provide an organised fast response to an in-bounds avalanche at NZSki. Avalanche rescue is the only pre-plan whereby the use of helicopters, if needed, is pre-approved by the NZ Police Force.

Once the pre-plan is activated contact by 1-1-1 with NZ Police occurs and the coordinated incident management system (CIMS) framework is put in place. Patrol will move into roles as hasty team searchers with a qualified avalanche level 2 practitioner taking on the role of Accident Site Controller (ASC). This team will be further backed up by other members of the patrol and Medical staff alongside qualified rescue dog teams when available.

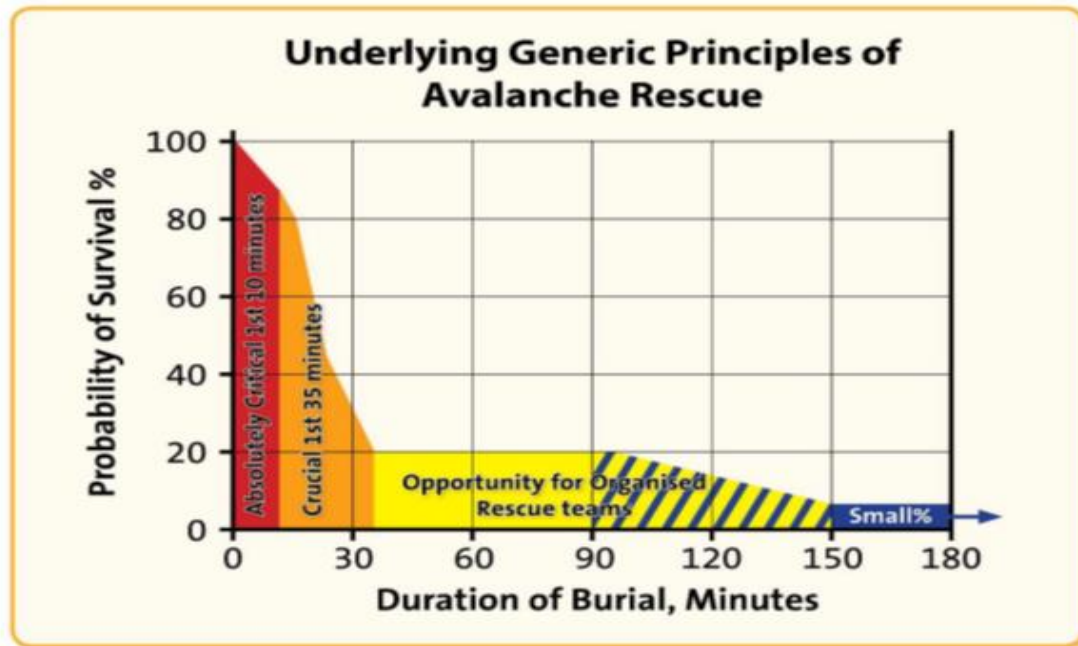
As a search expands outside agency may be used to help bolster any rescue operation. This will be determined by NZ Police who will become the lead agency in any rescue operation. NZSki will continue to offer support and expertise as required by NZ Police.

For an avalanche rescue operation for an out of bounds avalanche close to an NZSki area Patrol may act as first responders, but NZ Police will take charge directly.

For MtHutt please reference the Canterbury Winter Response Groups Avalanche Rescue Pre Plan.

Duty Manager	Mountain overview, IMT member
Ski Patrol Supervisor	IMT member/ Accident Site Controller
Ski Patrollers	First & second response teams
Road Patrol	Drivers
Maintenance	Drivers, secure vehicle, mechanical safety
Administration	Follow checklist, record all communications, prompt.
Ski School	Support help
Grooming/ Snowmaking	Skidoo and grooming transport

Probability of Survival Time frame



1. 1st Phase:

Red: Absolute critical time period during the first 10 Minutes when most people are still alive

2. 2nd Phase:

Orange: Crucial time period up to 35mins when members of victim's party should put all effort into searching and digging out victims. If not found at 35 minutes begin contacting outside resources.

3. 3rd Phase:

Yellow: When organised rescue team arrives. The goal for all rescue teams should be to be on scene within 90 minutes of victim burial. This phase runs to 150-minute mark

4. 4th Phase:

Blue: Reduced % for live find unless large air pockets are victims begin to succumb to Hypothermia. Potential for better results around buildings and vehicles.

6. AVALANCHE RESCUE EQUIPMENT

	MT HUTT	CORONET PEAK	REMARKABLES
1st Party Rescue (Patrol equipment)	1 Avalanche Transceiver 1 Probe 1 Shovel 1 Small first aid kit 1 Radio 1 Harness 1 Belay device 2 Carabiners 1 Prussik	1 x Transceiver 1 x Collapsible Probe 1 x Avalanche Rescue Shovel 1 x Small First Aid Kit 1 x Radio 1 x Harness 1 x Belay Device 2 x Carabiners 1 x Prussik 1 x Pentrox 1 x Set of 8 OPAs 1 x CPR Pocket Mask 1 x Headlamp 1 x CP Repeater Radio Air Bag Packs: 4 x airbag packs at Express top	1 Transceiver 1 Probe 1 Shovel 1 Small first aid kit 1 Radio 1 Harness 1 Belay device 2 Carabiners 1 Prussik 1 Pentrox

<p>2nd Party Pack</p>	<p>Canterbury Avalanche Response Pack</p> <ul style="list-style-type: none"> 1 S.A.R radio 1 Notebook/pencil 1 Clipboard 1 Head lamp 1 Spare Bat 1 Foam mat 1 Heat pack (small) 1 Heat pack large 1 Blue tarp (shelter) 2 Bivvy Bag (Red) 1 Smoke flares 1 Snow shoes 1 Spray paint (orange) 1 Warning horn 1 Shovel 1 Collapsible probe 20 Flags (blue) 21 Flags (red) 1 Wind wand (Heli) <p>Probe Pack:</p> <ul style="list-style-type: none"> 3 tubes with 15 probes/each 9 Collapsible probes 50 Red flags 42 Blue flags 1 Flagged rope probing 1 Notebook/ pencil 	<p>Express Top Response Kit:</p> <ul style="list-style-type: none"> Avalanche Rescue Plan ICAR Flags & Instructions ICAR Avalanche Victim Resuscitation Checklists 4 x Shovels 6 x Collapsible Probes 2 x Guidon Cord 3 x Emergency Foil Blanket 1 x Fleece Blanket 2 x Whistles 2 x Basic First Aid Kit 1 x ASC Vest 1 x Fluro Vest <p>VHF Radio</p> <ul style="list-style-type: none"> 1x Express Top (Heli Pack) 1 x Patrol Base <p>RECCO Devices</p> <ul style="list-style-type: none"> 1 x Express Top 1 x Patrol Base <p>Express Top Heli Pack:</p> <ul style="list-style-type: none"> 1 x Spray Paint 1 x Flag 1 x VHF Radio Heli ESX07 1 x Hi-Vis Vest <p>Express Top Flag Kit:</p> <ul style="list-style-type: none"> 30 x Red Flags 20 x Yellow Flags 22 x Blue Flags <p>Express Top Probe Kit:</p> <ul style="list-style-type: none"> 11 x grey Steel Probes (attached to cell building at the top of back bowls) <p>Greengates Probe Kit:</p> <ul style="list-style-type: none"> 11 x grey Steel Probes (attached to Greengates top patrol build78ing) 	<p>Patrol Base:</p> <p>Avalanche Dog Asst Handler Pack</p> <ul style="list-style-type: none"> Trauma blanket with heat pads 2 x Collapsible probes Snow shoes 2 x Orange Flag Bundles <p>Avalanche Response Pack</p> <ul style="list-style-type: none"> Clipboard & ICAR Guidelines Hi Vis vest for ASC Signs for Point of entry. Dazzle Flag bundles & Holsters (ICAR) <p>Second Party Packs</p> <ul style="list-style-type: none"> 12 shovels 6 probes Clipboards <p>Heat Pack</p> <ul style="list-style-type: none"> Bothy Bag Sleeping Bag Heat pads Thermos Space Blankets <p>Probe Tubes</p> <ul style="list-style-type: none"> 45 Steel probes
<p>Additional Support Equipment Ski Patrol Headquarters</p>	<ul style="list-style-type: none"> Rescue toboggans Full medical kit - including oxygen, back boards and resuscitation equipment etc Sleeping bags, blankets Thermos flask, food and drink from restaurant Portable lighting equipment for night rescue Explosives equipment Rescue Dogs Helicopter gear 		<ul style="list-style-type: none"> Full medical kit - including oxygen, back boards and resuscitation equipment etc. Rescue Dogs Helicopter gear

7. INSTRUCTIONS FOR ACCIDENT SITE CONTROLLER

1. **CALL LOCATION** and proceed immediately to the accident site if no further equipment is required.
2. **EVALUATE THE ACCIDENT SITE, CONFIRM SAFE TO PROCEED** and take charge of rescue procedures, inform First Party Leader of your assuming command of the accident site operations
 - Ask for complete report from First Party Leader including clues, number of victims, areas that have been probed and lists of manpower and equipment in use.
 - Assess for any short comings and correct if necessary.
 - Operate under CIMS protocol to manage personnel safely
3. **MAINTAIN CONTINUOUS LIAISON WITH BASE**

8. INSTRUCTIONS FOR 1st PARTY LEADER

Senior Patroller, Snow Safety Officer, Patrol Team Leader, or Patrol HOD.

1. **ORGANISE** 1 other qualified patroller, (preferably 2-3), to respond
2. **IDENTIFY** avalanche site and the best way to travel to the site. Take your Patrol Pack and the Recco Detector.
3. **NOTIFY BASE** – When on scene, First Party Leader is ASC until relieved by higher authority.
 - At arrival to site, advise number of people in your party (NAMES AND EQUIPMENT)
 - See ASC Leader Instructions.
4. **ASSESS ACCIDENT SITE FOR FURTHER DANGER**
 - If necessary, an avalanche lookout should be posted and an escape route established in case of further avalanches. All equipment should be kept close at hand, downwind for dog if possible. Assess the risk of further avalanches within the whole ski area.
5. **INITIATE SEARCH:**
 - Identify any clues, Transceiver, Recco, Spot Probing, and Dogs as soon as they arrive.
 - Consider avalanche size, location, and available resources when deciding on how to begin initial search. Don't send all searchers in at once.
 - Transceiver Search should be the initial priority, but keep in mind that most guests probably do not ski/ride with transceivers on a daily basis.
 - With the above in mind, Recco and/or Trained Avalanche Dogs should be the next method of searching
 - Concurrently, identify and spot probe any clues that are visible on the surface, also spot probe likely burial areas and deposition areas.
6. **HAND OVER COMMAND AND ALL DETAILS OF SEARCH PROGRESS** to Accident Site Commander on arrival.

9. INSTRUCTIONS FOR 2nd PARTY LEADER

Senior Patroller or patroller with adequate experience.

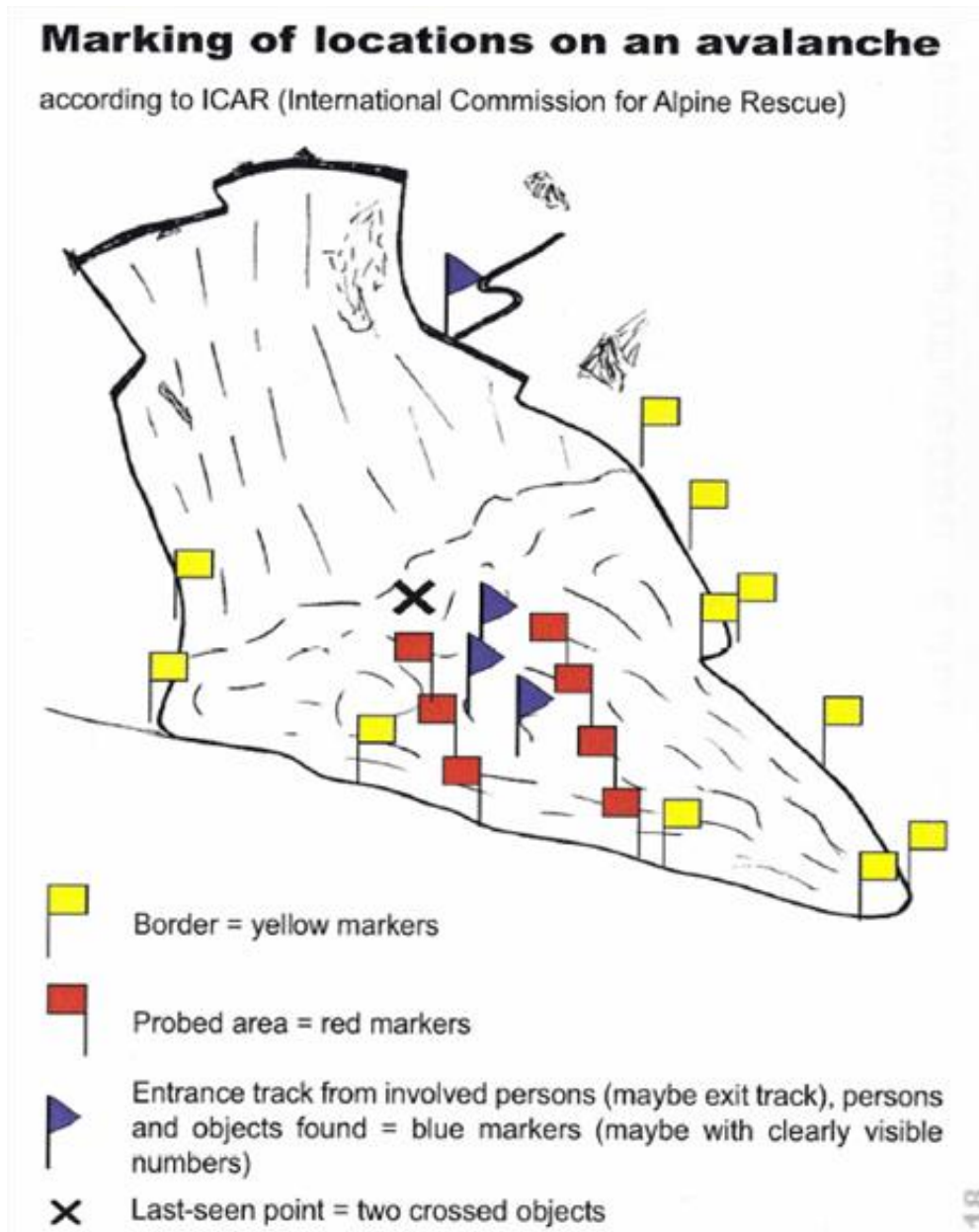
1. **ORGANISE** - Gather an appropriate 2nd response team (5-6 people) with qualified patrol personnel or similar, the 2nd Party Pack from Bungy Hut, the Heli Radios and the Recco Detector if not already on site.
2. **NOTIFY BASE** - Inform IMT that you are ready to be deployed and await their instructions. Gather any further equipment requested by the ASC or IMT and be ready for deployment.
3. **REPORT** – Proceed by safe route to incident site. Report to the ASC and participate in the search in designated roles.

Roles for the 2nd Party Team in the Search may include but are not limited to:

- Probing – spot, course or organizing fine probe lines
- Digging – Transceiver finds, probe strikes, dog indications, or Recco finds
- Assisting with patient care & extraction
- Helicopter Landing, Safety, and Patient Extraction
- Mark out Avalanche site in accordance with ICAR flags (see section 10 below)

- **Flag Colours:**
 - Red = Probe Line Areas
 - Blue = Searched Areas & Safe Route In
 - Yellow = Avalanche Boundaries
 - Orange = Dog Indications
 - Two Crossed Objects = Last Seen Point

10. LOCATION FLAG COLOURS



Flags marking indications and clues are used in pairs (joined in the middle with a rubber O-ring) and placed side-by-side vertically with the flags opposing to maximize visibility.

Once a clue or an indication has been checked the flags are then re-set in the crossed position – ensure that the orientation of these flags is visible from the **location of the ASC**.

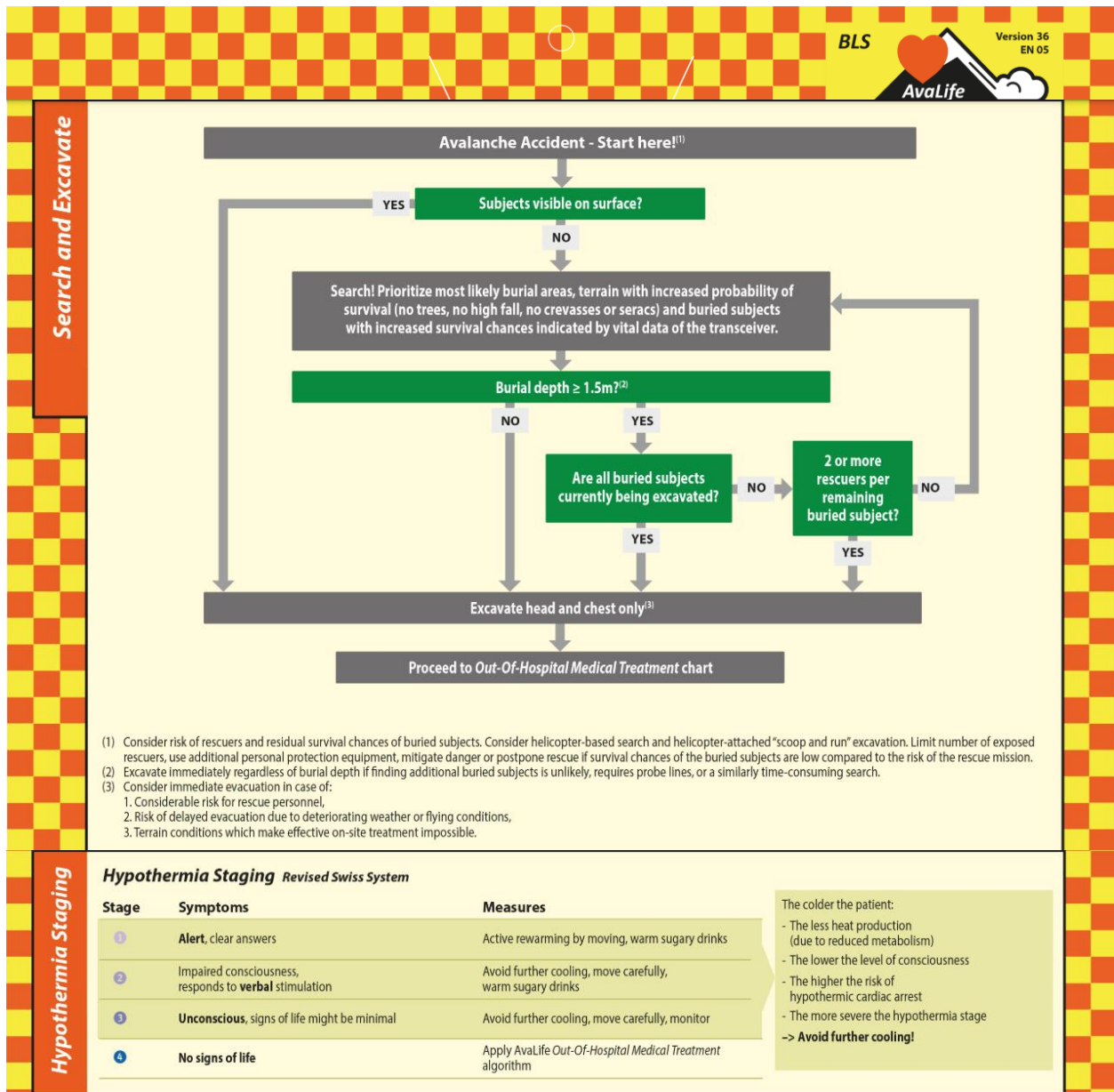
If a flagged area has been double-checked a second pair of crossed flags can be used.

All flags remain in position until the search has been completed.

Orange flags will be brought by dog team.

11. MEDICAL TRIAGE AND CONSIDERATIONS

An avalanche is a medical emergency with unique effects and requirements. The following Avalife Flow chart is to be used by any rescuers/medical team to ensure that all victims have the highest propensity for survival. Medical staff should be made aware of this document and should be familiar with it prior to commencing the winter.

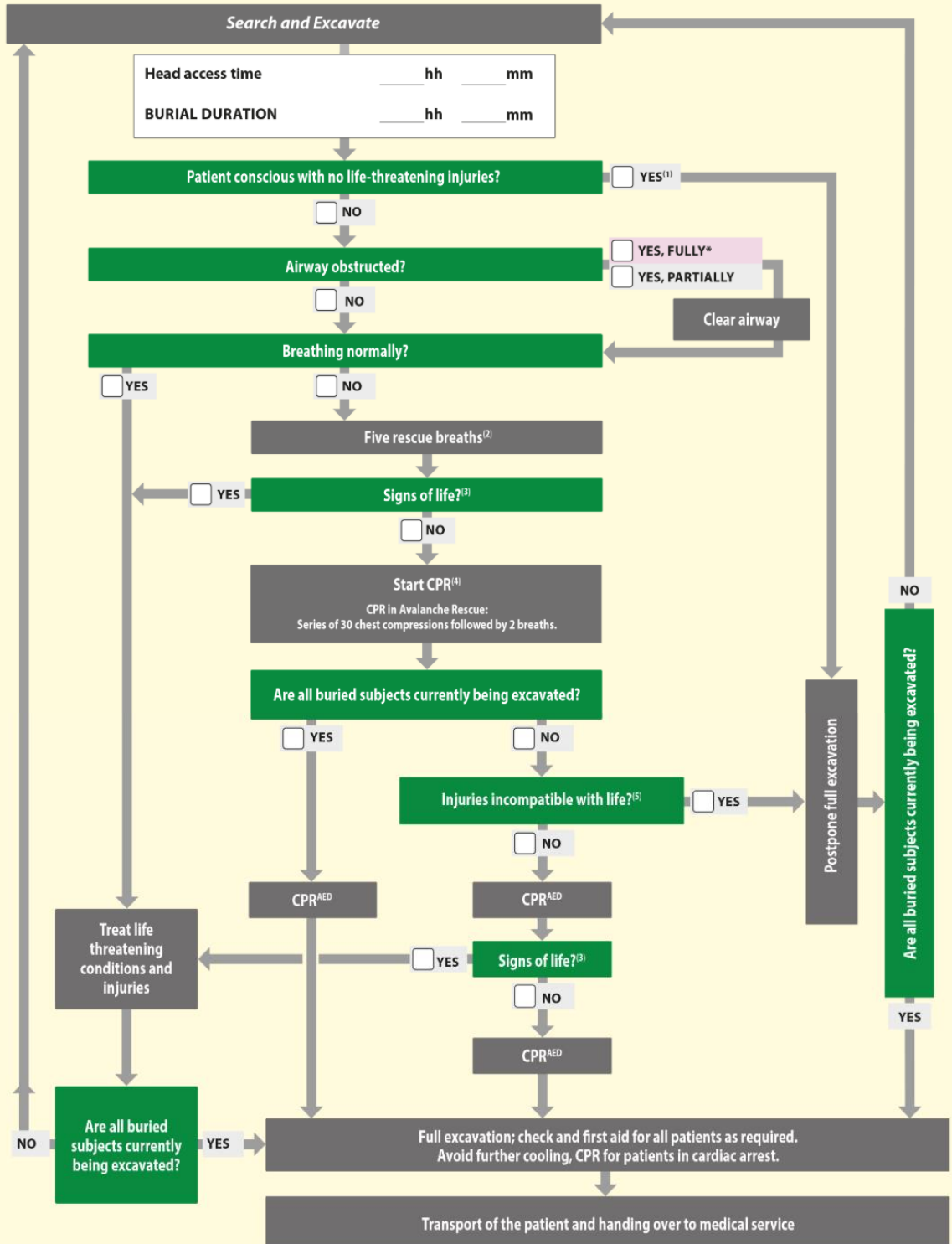


ACCIDENT TIME __ hh __ mm

ALARM TIME __ hh __ mm

PATIENT ID

Avalanche Accident – Out-Of-Hospital Medical Treatment



(1) In case of severe shortage of rescuers, people who were caught by the avalanche and rescued may assist in the rescue of the remaining buried subjects. The criteria for the decision if and for what purpose they can be included in the rescue are:
1. Effort to fully excavate them, 2. Their potential to assist the rescue and 3. Continuous assessment of their condition.
(2) Rescue breaths HIGHLY recommended as avalanche patients often asphyxiate. No rescue breaths -> no oxygen -> no return of spontaneous circulation -> no survival.
(3) Agonal breathing in an unresponsive patient must not be interpreted as a sign of life. It can be described as: breathing barely or occasionally present, gasping, groaning, moaning, snorting or ineffective, labored breathing.
(4) Firm surface crucial.
(5) Obvious evidence of severe mechanical impact/high fall/severe collision with trees or rocks or a head/trunkal body position incompatible with life.

12. INSTRUCTIONS - ADMIN/INCIDENT MANAGEMENT TEAM

Roles to be filled by Admin HOD, Admin TL, Duty Manager/Ops Manager, and Patrol HOD/SSO/TL. Utilize the Administrative Conference Room for all duties. As NZ Police arrive, they will join the IMT team and even take over as IMT Leader.

- Upon Initial report of avalanche, Admin will retain the witness and begin to complete the avalanche witness form. Retain witness for further information.
- Initiate the Avalanche Rescue Plan and begin recording all communications
- Assemble Incident Management Team (IMT) with the above parties and convene in the conference room.
- Call for Radio Silence and direct all other non-essential mountain radio traffic to alternate channel
- Notify NZ Police of an avalanche incident at [name] Ski Area and request additional resources:
 - Local Dog Teams
 - Heli Team
 - Other Mountain Ski Patrol
 - St. John's Medical
 - Put other resources on notice: Lift Operations/Ski School/Food & Beverage/Roads/Maintenance
 - Close appropriate lifts to maintain span of control
 - Set up media area and notify Ski area specific Media/NZSki Marketing & Media Department of incident
- Assign person to communicate with guests/parties that may be involved: work to discern if they are actually involved and if so, what kind of gear they may be carrying
- Continue to Communicate with Hasty/Initial Team/ASC on progress and what needs they require
 - Ask for updates approximately every 15-20 minutes
- Mobilize additional resources needed
 - 2nd Party Response Team
 - Helicopters
 - Snowmobile Drivers (Snowmaking, Maintenance, Lift HOD/TLs etc.)
 - Medical Response (Med Rescue, Otago Rescue, St. John's, Westpac Rescue)
 - Food/Water for continued search operations (F&B Department)
 - If search looks like it will continue into the dark, organise lights from maintenance/patrol/Fire Dept
 - Other resources requested by ASC
- Continue recording until search is complete and all searchers have been cleared of the scene and accounted for

