ARTICLE I ORGANIZATION NAME

The name of this group shall be the Skagit County Emergency Medical Services (EMS) and Trauma Care Advisory Board, hereinafter, "The Advisory Board."

ARTICLE II ORGANIZATION AND OBJECTIVES

1.0 Organization

- 1.1 The Advisory Board is created by Skagit County Resolution number R20190037 to form a Local Emergency Medical Services and Trauma Care Advisory Boards as authorized in accordance with WAC 246-976-970 and RCW 70.168.120
- 1.2 The Advisory Board consists of volunteer representatives as designated in Skagit County Resolution number R20190037, from public and private agencies responsible for the delivery of emergency medical services and/or are consumers of emergency medical services in Skagit County.
- 1.3 This Advisory Board will follow the Open Public Meetings Act.

2.0 Purpose

2.1 The purpose of The Advisory Board is to serve as an Local Emergency Medical Services (EMS) and Trauma Care advisory board to Skagit County Board of County Commissioners (SCBOCC), to disperse information from the North Region EMS and Trauma Care Council (NREMSTCC) and the State Department of Health, Office of EMS and Trauma Care Systems (DOH) to local providers, pursuant to WAC 246-976-970.

3.0 General Objectives

- 3.1 Review, evaluate, and provide recommendations to the Skagit County EMS Director regarding the provision of emergency medical services and trauma care in the region, and provide recommendations on the regional emergency medical services and trauma care plan.
- 3.2 Recommend individuals as participants on the Regional Emergency Medical Services and Trauma Care Advisory Board.
- 3.3 Review and make recommendations, for individuals applying for recognition or renewal of recognition as senior EMT instructors for final review and approval by the Skagit County Medical Program Director.
- 3.4 Review applications for initial training classes and Ongoing Training and Evaluation Program (OTEP) programs and make recommendations to the department for final review and approval by the Skagit County Medical Program Director.

- 3.5 Make recommendations regarding the minimum and maximum number of verified prehospital transport and aid providing agencies needed in the County for the regional EMS and trauma plan.
- 3.6 Review and recommend new initiative funding proposals.
- 3.7 Make prioritized recommendations to the North Region EMS & Trauma Care Council (NREMSTCC) regarding grants from the NREMSTCC requested by local ems agencies.
- 3.8 Work on Prevention and Education for EMS and Health-related issues in partnership with other agencies.
- 3.9 Provide quarterly communication to EMS providers and stakeholders.
- 3.10 Develop strategic recommendations on Dispatch/911 EMS priorities for presentation to the 911 Board.

ARTICLE III ORGANIZATION MEMBERSHIP

- 1.0 Advisory Board membership makeup
- 1.1 The Advisory Board shall be limited to fourteen (14) members and two additional Ex-Officio positions.
- 1.2 Members will consist of a maximum of two representatives from local hospitals, one BLS transport provider, a maximum of two ALS transport providers, one rural fire responder or agency designee, the Skagit County Medical Program Director or designee, the Skagit County EMS Director, one consumer, three elected officials, one City of population over 7,500, one Town of population under 7,500 and one Skagit County Commissioner (County Commissioner serving as an ex- officio), one prevention specialist, 911 Board Chair (ex-officio) and one local Law Enforcement representative. If there is a lack of people willing to serve in the above listed positions, the size of the Board shall be decreased.
- 1.3 Recommendation for appointment will be made by agencies types listed above, to the EMS Director for appointment by the Skagit County Board of County Commissioners.
- 1.4 Approved members shall serve for a three-year period, provided they remain in good standing, except for some initial appointments that exceed three years as specified in Skagit County Resolution number R20190037.
- 1.5 Unexcused absences from two consecutive meetings shall be cause for removal from the Advisory Board.

- 1.6 Any member may be removed by the Advisory Board for inappropriate or disruptive behavior by recommendation to the Skagit County Board of County Commissioners by majority vote.
- 2.0 Conflict of interest
- 2.1 All members shall make a full disclosure of any conflicts of interests. New members shall be advised of this policy upon appointment to the advisory board.

ARTICLE IV MEETINGS

1.0 Meetings and Attendance

- 1.1 Regular meetings shall occur at least once every quarter according to a schedule and place established by the Advisory Board.
- 1.2 Special meetings of the Advisory Board may be called by the Chairperson, Skagit County Board of County Commissioners or the EMS Director
- 1.3 Members can call-in to meetings for valid attendance

2.0 Minutes

2.1 Minutes shall be taken at all meetings of the Advisory Board and shall include an accurate summary of all recommendations, discussion and actions. Minutes shall be available to the public.

3.0 Quorum

3.1 Quorum for the Advisory Board shall be a majority of the voting Board.

4.0 Voting

- 4.1 A simple majority of votes shall be required for action on an issue.
- 4.2 New Initiative Fund or grant funding votes shall require a 60% super majority for action on an issue.
- 4.3 General business may be voted on at the same meeting that it was introduced on the meeting agenda
- 4.4 No proxy for voting.

ARTICLE V OFFICERS

1.0 OFFICERS

- 1.1 The Chair and Vice Chair shall be elected annually at the first meeting by a simple majority vote of a quorum of the voting members.
- 1.2 The Chair shall preside at all meetings.
- 1.3 The Vice Chair In the absence of the Chair, shall preside at all meetings.
- 1.4 In the absence of both Chair and Vice Chair, the Chair can appoint a designee to preside over the meeting.

ARTICLE VI COMMITTEES

1.0 AD HOC COMMITTEES

1.1 The Advisory Board may appoint ad-hoc committees and determine membership as the need may arise. Members of the committee whether Members of the Advisory Board or not, shall be voting members of the Ad-hoc committees. Ad-hoc committees shall report recommendations to the Advisory Board.

ARTICLE VII AMENDING BY-LAWS

1.0 AMENDMENTS

- 1.1 Amendments to these by-laws may be recommend by a simple majority affirmative vote of the voting members at a meeting, provided that the following requirements have been met: Copies of the amendment or amendments are made available to the voting members at least thirty (30) days in advance of the meeting and that the notice of the meeting states that recommended amendments to this document will be considered and voted upon.
- 1.2 Recommended amendments to the bylaws will be presented to the Skagit County Board of County Commissioners by The EMS Director for final approval.



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EMS Service Verific	ation and \	/ehicle Lice	ense Application
This is for: x New □ □ Renewal License	Change of Owner # AMB.ES.610887	•	endment
Service Type: x Ambulance (transp	port)	☐ Aid Service (non transport)
Level of care provided - Check only	one: X BLS	□ ILS □ ALS	
Check One			
☐ Association	☐ Municipality (C	ity)	Tribal Government Agency
☐ Corporation	☐ Municipality (C	ounty) ⊏] Trust
☐ Federal Government Agency	□ Non-Profit Corp	poration	
X Limited Liability Company	□ Partnership		
☐ Limited Liability Partnership	☐ Sole Proprietor		
☐ Limited Partnership	☐ State Governm	ent Agency	
1. Demographic Information	 on		
UBI # 604 585 981		ederal Tax ID (FEIN)	# 84-4965262
Legal Owner/EMS Service Name Trans-West Ambulance Service, LLC			
Mailing Address	526 N. West A	ve PMB 112	
City Arlington	State WA	Zip Code 98223	County Snohomish
Phone (enter 10 digit #) 425-220-9693 Fax (enter 10 digit #)			
Email Address john@trans-westambula	nce.com	Web Address: www	v.trans-westambulance.com
Name (Business name as advertised on	signs or Web site)	Trans-West Ambula	ince Service
Physical Address 6	3110 State Route 53	0	
City Arlington	State WA	Zip Code 98223	County Snohomish
Phone (enter 10 digit #) 425-220-9693		Fax (enter 10 digit	#)
Mailing Address (If different than physica	l address) 526	N. West Ave PMB	112
City Arlington	State WA	Zip Code 98223	County Snohomish:

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2. Specific Info					
Organization Type:	check one	7 y)			Š.
☐ City Fire Depart	ment] Fire Di	strict		Municipal (city/county)
☐ City/Fire District	Combined] Hospit	al District		Private Volunteer Association
□ EMS District] Industr	rial Fire Departme	nt 🗆	Search & Rescue
☐ Federal Fire De	partment 🗖	Law E	nforcement	X	Other Private Company
Response Informati	on				
Please provide the num when changing the exis					calendar year (if applicable, i.e. ide this information):
Primary Responses			Transp	oorts Prima	ry/Secondary
Secondary Respons	ses		Inter-fa	acility Tran	sports Only
3. Personnel St	atus				
Please submit your cu	rrent roster f	rom the De	partment of Healt	th EMS Ce	rtification Online.
Staffing Model: X Paid	□ Volur	nteer 🗀 C	ombination		
Number of EMS person	nel that are:	<u>_1;</u>	2_Paid _	Volunte	ce r
Number of personnel no	on-credentiale	d that are:	AFA (Advanced	First Aid)	Non-Medically Trained Drivers
4. EMS Supervi	sor Infor	mation			
EMS Supervisor John	Simbeck			WA Sta RN0016	te DOH Credential # (if applicable) 2809 ES60027259
Email Address John@	Trans-WestAm	bulance.com		Phone	(enter 10 digit #) 425-220-9693
5. Supervision					
Name of County Medica	al Program Dir Matthew Rusel			WA Sta	te DOH Credential # MD 00039841
Name of MPDD/Agency	Name of MPDD/Agency Physician Peter Hutchinson WA State DOH Credential # OP 00001644				
6. Additional In				<u> </u>	
Legal Owner Inform					
					rs, members, managers, etc.
Name	Address			ne (enter 1	
John Simbeck	PO Box Silvana,	368 WA 98287	42:	5-220-9693	Owner/CEO
Peter Hutchinson	PO Box Clinton,	1153 WA 98236	423	5-876-0799	Owner/MPD
Change of Ownersh	ip Informatio	on .			
Previous Name of Lega	l Owner				Previous Service Credential #
			RECEIVED)——	Effective Data Co.
Previous Name of Servi	ce			-	Effective Date of Change
			———MAR—1-9—2021		

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7. Emergency Medical Vahicles Please provide the following information for all vehicles to be licensed. Vehicle ... cation is the address in which the vehicle is physically located. Indicate the type of vehicle(s): AMB = ambulance; AID = aid vehicle (as defined in RCW 18.73.030 and consistent with RCW 70.168). See our website for the complete EMS and Trauma Care System Statutes. Physical address of vehicle 6110 State Route 530 State WA Zip Code 98223 City Arlington County Snohomish Vehicle Information Year Make and Model X AMB 🗆 AID 2004 Ford Econoline VIN License Plate Number 1FDXE45P74HA70370 C99659S Year Make and Model X AMB _AID 2006 Ford Econoline License Plate Number VIN C99660S 1FDWE35P36DB18916 Year Make and Model ☐ AMB ☐ AID License Plate Number VIN Year Make and Model License Plate Number VIN Physical address of vehicle City State Zip Code County Vehicle Information Year Make and Model □ AMB □ AID . **V**IN License Plate Number Year Make and Model AMB AID License Plate Number VIN Year Make and Model ☐ AMB ☐ AID VĪN License Plate Number RECEIVED Year Make and Model

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License Plate Number

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8	. General Operation			
W	ease describe the general operation of your service; including how it will operate in a manner consistent with AC 246-976, the Regional Plan, and approved Regional Patient Care Procedures. For more information on gency and vehicle licensing see website.			
Provide an explanation of your:				
1.	Dispatch plan <u>see attached</u>			
2	Response plan see attached			
3	Response area see attached			
4.	Type of transport - please circle one: Emergency, Interfacility, <u>Both</u> , or N/A.			
5.	Tiered response and rendezvous see attached			
6.	Back-up plan to respond (may not apply to agencies doing interfacility transports only) see attached			
No	ote: Other services involved in your response plan must be informed by you that they are participants and must agree to that participation. Attach additional completed pages if you need more space.			
9.	Rural Service Attestation: To be completed by agencies with non-medically trained ambulance drivers			
l h	ereby affirm and declare that the information provided on this application is true and correct, and that:			
1.	We have verified that each non-medically trained driver is at least 18 years of age.			
2.	We have performed a Washington State Patrol background check and have verified that each non-medically trained driver has no reported offenses.			
3.	We have verified that each non-medically trained driver holds a valid driver's license with no restrictions.			
Si	gnature of Owner/Operator Date			
Pr	int Name Print Title RECEIVED			
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10. Signatures

I hereby affirm and declare that the information provided on this application is true and correct, and that:

- We operate in a manner that is consistent with the Washington State Triage tools; EMS and Trauma Care Council Regional Plan, pre-hospital Patient Care Procedures, and department approved County Operating Procedures.
- Our current certified EMS personnel are familiar with and utilize a Department of Health approved Medical Program Director (MPD) patient care protocols.
- 3. The vehicles identified on page three meet the minimum equipment requirements for the level and type of trauma verification requested by our service.
- 4. We meet the minimum staffing requirements as identified on page four.
- 5. We maintain current liability insurance coverage.
- 6. In accordance with <u>RCW 43.70.490</u>, our certified EMS personnel are adequately trained in and familiarized with techniques, procedures, and protocols for best handling situations in which persons with particular disabilities are present at the scene of an emergency.

Signature of Owner/Operator

Date

John Simbeck

Owner/CEO

3/17/21

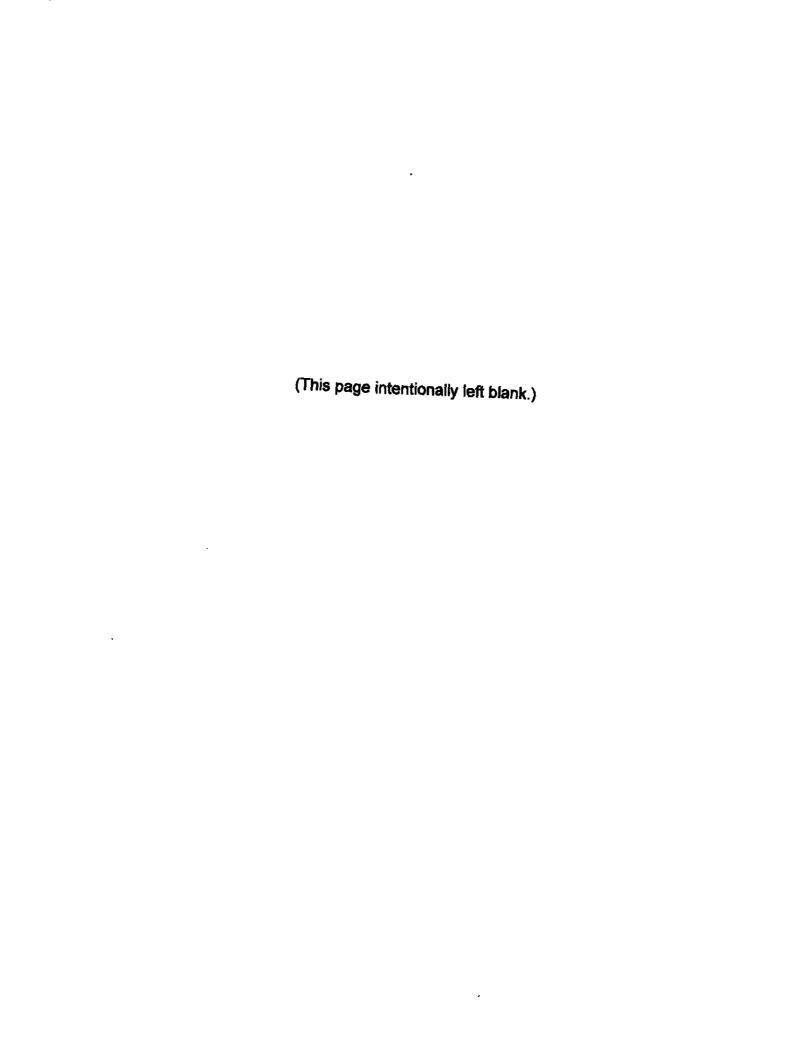
Print Name

Print Title

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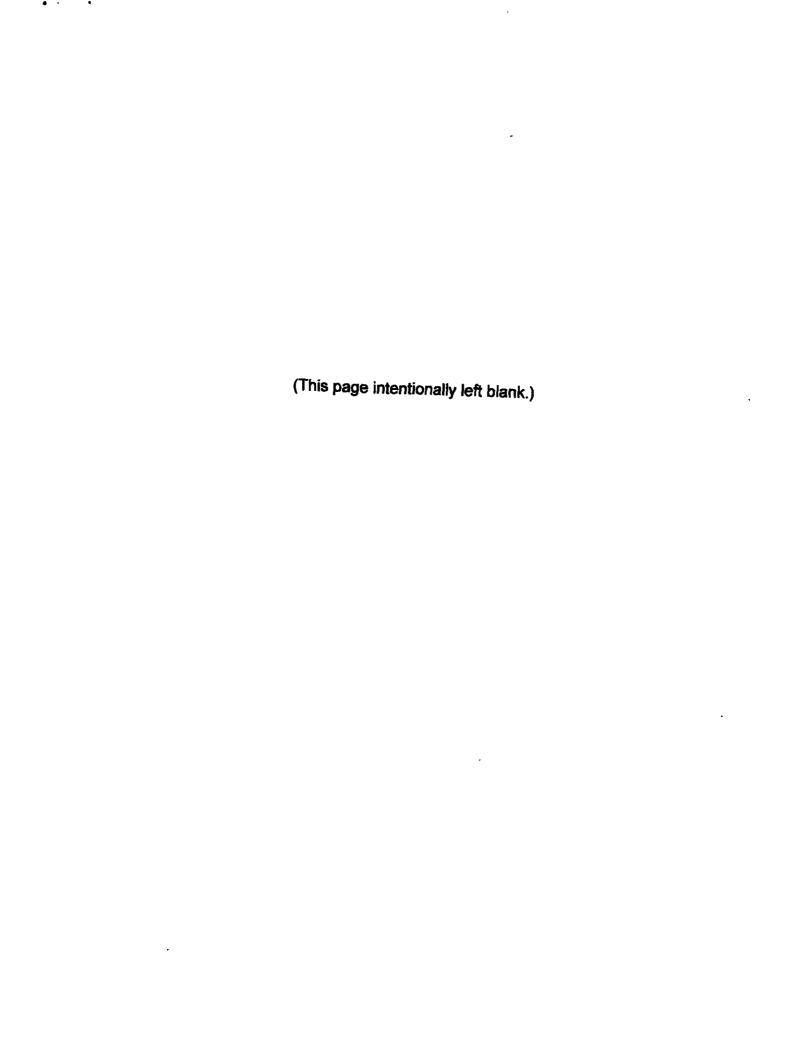
Regional Council Review and Comment

This portion to be completed by the service applying for licensure and mailed to the department with your completed application packet.

EMS Service Name <u>Trans-West Ambulance Service, LLC</u>	
Address: 526 N. West Ave PMB 112, Arlington, WA 98223	
Contact Person John Simbeck	
Phone (enter 10 digit #): <u>425-220-9693</u> Date:	
Level of care provided on a 24-hour basis: X BLS 🔲 l	LS _ ALS
X Ambulance (transport)	☐ Air Ambulance
The signature below is required in accordance with <u>WAC 246-9</u> only DOH may approve licensure and verification of services.	<u>976-390</u> . Please note that
This portion to be completed by the Regional Council Repreturned to the department.	resentative and
Does this application for verification appear to be consistent wit	th the Regional Plan?
☐ Yes☐ No Attach documentation to explain a "No" answer.	
-	
Regional EMS Council Representative	
EMS Region	
Signature D	ate
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EMS Agency Verification and Vehicle License Application Packet

Contents:

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In order to process your request:

Mail your application and other documents to:

EMS Credentialing P.O. Box 47877 Olympia, WA 98504-7877

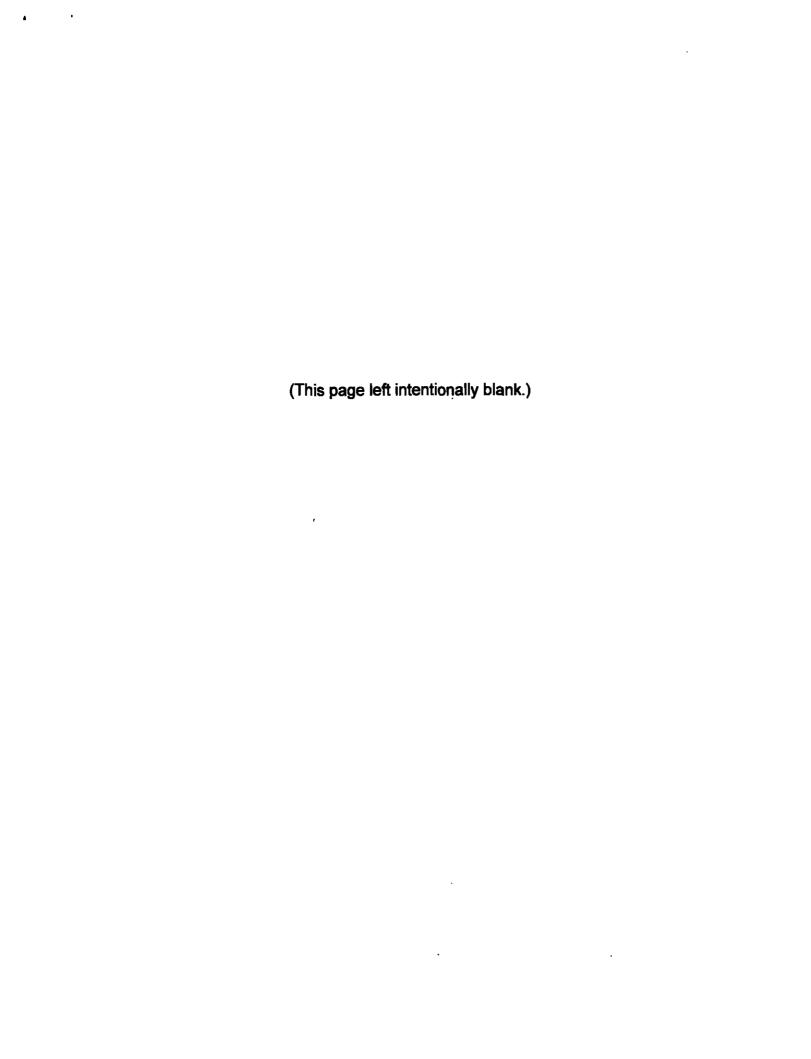
Contact us:

360-236-4700

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zip and county.

Application Instructions Checklist

When your application for EMS Service Verification and Vehicle License Application is received by the Department of Health (DOH), it will be reviewed and you will be notified in writing of any outstanding documentation needed to complete the process.

All information should be typed or printed clearly in blue or black ink. It is your responsibility to submit the correct required forms.

Indicate type of application—new, change of ownership, amended or renewal.

- New—First time requesting: An EMS Service and Trauma Verification or Trauma Verification on a EMS Service and Vehicle License.
- Change of Ownership—When name of legal owner/operator changes resulting from the from the sale of an agency.
- Amended—Request the addition or elimination of information on the EMS Service Verification and Vehicle License. For example, a 'Change of Response Area', 'Rural Services Approval' or 'Level of Care,' etc.
- Renewal—Renew EMS Service Verification and Vehicle License. Enter your current agency license number.

Indicate service type: Ambulance (transport), or Aid Service (non-transport	t).
Check the level of care provided: Check which one applies to you.	
Check One: Please check your legal owner/operator business structure type according to Washington State Master Business License.	o your
1: Demographic Information: Uniform Business Identifier Number (UBI #): Enter your Washington State #. All Washington State businesses must have UBI #'s. City, county, and state government departments also have UBI#'s.	
Federal ID Number (FEIN #): Enter your Federal ID Number, if the busines been issued one.	s has
Legal Owner/EMS Service Name: Enter the owner's name as it appears o UBI/Master Business License.	n the
Legal Owner/EMS Service Mailing Address: Enter the owner's complete address.	mailing RECEIVED
Phone and Fax Numbers: Enter the owner's phone and fax number.	MAD 1.0 anga
Email and Web Address: Enter the owner's email and Web addresses, if	MAR 1 9 2021
applicable.	OH/HSQA/O
EMS Service Verification Name: Enter the name as advertised on signs o	r Web

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Mailing Address: Enter the mailing address, if different than physical address.

Service Physical Address: Enter the physical street location including city, state,

site. For example, 'Fire District #99,' 'Woodbridge Fire and Rescue,' etc.

Phone and Fax Numbers: Enter the phone and fax number.

2. Specific Inform / ` ำ:
Organization Type ease check the one organization to best applies to your service.
Response Information: Provide a number for each EMS activity. Primary response, first out/first alarm. Secondary response, responding at primary service's request, 2nd out alarm. First time applicants need not provide this information.
3. Personnel Status: Indicate your EMS Service staffing model, see definitions below.
Paid: All staff are compensated
Volunteer: All staff are volunteer
Combination: A combination of any of the following:
Some staff are paid
Some staff are volunteer and receive some form of nominal compensation
Some staff are volunteer and receive no compensation
List the total number of Paid, Volunteer, Advanced First Aid (AFA) personnel, and the total number of Non-Medically Trained Driver (NMTD). NMTD are persons who do not hold a EMS certification issued by the Department of Health.
You must provide a copy of your current roster from EMS Certification online. If you need assistance please contact EMS credentialing 360-236-4859.
4. EMS Supervisor Information: Enter the name, phone number, and email address of the EMS Supervisor who is able to answer questions about licensing, vehicle licensing, and personnel association issues. Include a Department of Health credential number, if applicable.
5. Supervision: Enter name of the County Medical Program Director and their Department of Health credential number.
6. Additional Information: Legal Owner: List the names, titles, addresses, and phone numbers of the corporate officers, LLC members or manager, partners, etc. Attach additional completed pages if you need more space.
Change of Ownership Information: If applicable, list the previous legal owner name, previous name, previous service credential number, effective date of ownership change and physical address.
7. Emergency Medical Vehicles: Provide year, make and model, license plateMAR 19 2021 number, actual address of vehicle, AMB or AID, and VIN. Attach additional completed pages if you need more space. DOH/HSQA/OCS
8. General Operation: Provide information regarding the organization's general operation. Attach additional completed pages if you need more space.
9. Rural Attestation: Complete this section if you are operating with approval, or requesting approval as a rural service with non-medically trained drivers as shown in RCW 18.73.150 . The representative must read the affirmation statement thoroughly to ensure the provision of this section are understood. Then, print and sign name and enter the date.
10. Signatures: The representative must read the affirmation statement thoroughly

and enter the date.



Verification Requirements

Check with the Regional EMS Council to assure that the need for an additional service exists. If the response area is saturated with the maximum services, the application will not be consistent with the Regional EMS Plan.
Provide a map of response area.
Note: Maps of Response Areas are available in the respective Regional EMS and Trauma Care Office and plans are posted on the <u>website</u> . The minimum and maximum number of verified services by type and the distribution by response areas are specified in the approved regional EMS plans.
Complete the application including the following:
Note: For renewal only complete sections 1-6
1. Dispatch Plan
2. Response Plan (include station locations and system status management)
3. Response Area
4. Type of Transport (emergency or inter-facility)
5. Tiered Response and Rendezvous Plan
6. Back-up Plan to Respond
7. Interagency Relations
8. A detailed explanation of how the applicant's proposal avoids unnecessary duplication of resources/services as outlined in the Approved Regional Plan "Needs and Distribution of Services" provisions
 Adetailed explanation of how the service will meet the specific needs as outlined in the Approved Regional Plan
Include evidence of current liability insurance coverage to include professional, general and motor vehicle
Provide a copy of the liability insurance coverage policy, an ACCORD certificate of insurance, or a letter from a licensed insurer verifying the required insurance will be in place for the service at the time verification goes into effect
Provide a detailed narrative on each of the following:
a. Consistency with the Approved Regional Plan and Patient Care Procedure
b. Vehicles and Equipment
c. Sufficient Staffing Levels
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d. Trauma Training Frogram

- 1. How the service's present Certified EMS Personnel have been, or will be, trained so they have the necessary understanding of Department-approved Medical Program Director (MPD) protocols.
- 2. How the service will assure that its personnel understand their obligation to comply with the MPD protocols.
- 3. How the service will assure that its personnel will maintain currency with the protocols whenever they are revised.
- 4. How the service will address numbers 1-3 for new personnel as they join the organization.
- e. Participation and compliance with Regional Quality Improvement.

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Washington State DOH - Emergence Medical Service Agency Trauma Verification Application (Skagit County)

Type of Transport:

We will utilize ground transport ambulances (2 ambulances initially) to provide BLS and CCT (RN) based transport for interfacility transfers or other calls for service that need to efficiently transport patients to a higher level of care.

Tiered response and rendezvous plan:

We will operate on a tiered response plan that will be based off of our dispatch guidelines and applicable county protocols. These will include guidelines for deciding on a BLS response or ALS response for the appropriate transports. If this response is considered a prehospital or (911) response to a facility or a private call, we will ensure that the appropriate resources are dispatched including contacting 911 for the proper response.

We will utilize the current DOH and Washington State guidelines for Interfacility transports on deciding what level of service is needed and if we have the capabilities to handle such a transport.

Should we find ourselves exceeding our capabilities and limitations during or upon receipt of a transport request we will contact the most appropriate transport unit and ensure we rendezvous with them or that we divert the transport to a closer facility. For example, if during a routine BLS transport we encounter that the patient has become unstable or requires ALS care we will ensure that we either contact a paramedic or other ALS unit to complete the transport, render care as needed, or divert the transport to the nearest facility to ensure the patient receives the care they need as soon as possible.

Backup plan to respond:

We will be utilizing on call personnel and regularly scheduled available units to ensure proper response times and coverage available 24 hours a day, 7 days a week with two ambulances available initially.

Interagency relations: We will of course be operating as a private company providing a service to the community and facilities, including, but not limited to: Skagit Valley Hospital, Island Hospital, United General Hospital, clinics, and skilled nursing facilities. However, public service and the overall general safety of those we will ultimately serve will always take precedent. We will provide the highest level of

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service we can while ensuring cooperation with any agency that is needed to provide the level of service that our patients will require. We will ensure that we are in contact with each agency and facility in the area providing both interfacility and prehospital transport services so that we can ensure we are all working together for a common goal.

Detailed plan on how to avoid duplication of services:

There is only one other agency attempting to provide our level of CCT/ALS service that routinely operates out of Skagit County which is Northwest Ambulance. The current providers operating in and around these counties are Northwest Ambulance, Cascade Ambulance, AMR, Falck and the fire departments that provide paramedic transport in the case of an interfacility transport. We understand that the ability to provide a CCT transport or BLS transport can change at any time depending on call volumes or even by chance when a unit is not available when needed. We will not be duplicating services as there is only one other agency primarily in this area that can provide CCT/ALS transports.

We will maintain transport ambulances based at a station in Skagit County that will also be available for mutual aid with the fire department and MCI calls and will coordinate with the Skagit County 911 dispatch center.

Detailed explanation of how the applicant agency will meet the specific needs as outlined in the approved regional plan:

Trans-West Ambulance will provide further transport capability to the Skagit County and North Region in the capacity of both BLS and ALS/CCT interfacility transports and therefore improve the ability of the region to transfer patients to definitive care as well as improve responses to underserved areas. All transports conducted by our agency will adhere to EMTALA regulations and also follow current Washington State DOH interfacility and the North Region transport guidelines. In the instance that hospitals have exceeded their capabilities or require a transfer to another facility this agency will be present to provide the service of transferring them to another appropriate facility. With eleven trauma designated facilities in this region covering five separate counties, and only a few agencies dedicated to interfacility transports on both a BLS and ALS/CCT level, this agency can further assist in ensuring that there are less delays in transport or access to higher levels of care during the need of an interfacility transfer.

Consistency with the approved regional plan and patient care procedures

This agency will be able to respond to and provide both CCT and BLS interfacility transport services for Island, San Juan, Skagit, Snohomish, and Whatcom county. Per the regional plan and patient care procedures listed for North Region, Trans-West Ambulance will follow EMTALA regulations, the DOH interfacility transfer guidelines, and maintain trauma verification. In addition to following these regulations and guidelines, this agency will also ensure that patients are transported according to The State of Washington Prehospital Triage Destination Procedure for Cardiac Patients, The Prehospital Stroke Triage Destination Procedure for Stroke Patients, and Local County Operating Procedures.

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Vehicles and Equipment

Trans-West Ambulance currently has two units available to staff for response and we are currently purchasing additional ambulance units. One vehicle is a 2004 Ford Econoline, and the 2nd vehicle is a 2006 Ford Econoline. These vehicles will be equipped in accordance with WAC 246-976-300. In addition to this equipment, Trans-West Ambulance will equip their vehicles with the equipment necessary to provide CCT/ALS interfacility transport. This will include but is not limited to: Cardiac Monitor, Infusion Pumps, Ventilators, ALS medications, and other equipment as needed to provide the proper care for a Critical Care Transport. We have plans in place to increase the fleet shortly after approval of this application.

Sufficient Staffing Levels

Upon approval of trauma verification, trans-west ambulance will be staffing 2 BLS/CCT capable units 24/7. As mentioned in our backup plan, we will be utilizing these units with regularly scheduled full-time staff in addition to part-time or on-call staff to ensure staffing levels are sufficient to provide our level of service to the area. We are in the process of hiring additional staff to meet our staffing needs. We are planning to establish a station in Skagit County in a strategic location after approval of this application so that we can better serve the county.

Trauma Training Program

- 1. Trans-west ambulance will be utilizing Skagit County's OTEP training plan and a quarterly training calendar to fulfill all training requirements for the calendar year. In accordance with the OTEP plan, this agency will also require personnel to complete these training requirements and maintain certification in order to maintain employment. Employees will also be required to complete a protocol review test of the county MPD protocols prior to association with this agency.
- 2. Trans-West Ambulance will be completing their OTEP training through in-house training utilizing a BLS Evaluator for skills portions of OTEP training and Target Solutions for lecture presentations. These trainings will be offered on a continual basis in the interest of completing required trainings on a quarterly basis in accordance with the current Skagit County OTEP plan.
- 3. Trans-West Ambulance will include training to personnel and upon orientation to the agency about the importance of completing required trainings, attending mandatory offered trainings and case reviews. Personnel will also be required to review protocol changes as they occur through written examination and presentation as well as completing OTEP training requirements. Trans-West Ambulance will also host run reviews of both BLS and CCT runs to ensure that self-review and critique allow all providers to learn from transports and incidents.
- 4. Trans-West Ambulance will require all personnel as well as new personnel to complete a basic written test on current MPD protocols, basic EMS or OTEP skills, and perform skill evaluations to ensure competency and knowledge. Providers will be required to complete quarterly training requirements in order to maintain employment with this agency.

Participation and compliance with regional quality improvement program:

Trans-West Ambulance will become involved with the Skagit County EMS, and North Region campittees

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including the Prehospital, Trauma Cardiac & Stroke/Quality Improvement, Education, Medical Control Committee, Injury Prevention, and Hospital/Trauma Facilities committees. This will allow our agency to remain aware of current quality improvement methods and constantly improve agency capabilities and acknowledge current limitations as well as being an active contributor to these committees.

Crew List

	First			License
Last Name	Name	License	State License	Expiration Date
Simbeck	John	RN	RN00162809 ES.60027259	11/25/2021
Hutchinson	Peter	DO	OP 00001644	2/4/2022
Williams	Blair	RN	RN60136602	9/30/2021
Daly-DeYoung	Corinne	EMT	EMT.ES.60186188	6/30/2021
Moore	Gareth	EMT	AEMT.ES.60722849	4/30/2023
Karlburg	Johnathan	EMT	EMT.ES.60516682	2/28/2024
Horseman	Donald	EMT	EMT.ES.61149606	8/31/2024
Mundt	Shelby	EMT	EMT.ES.61149580	8/31/2024
Elizondo	Justin	EMT	EMT.ES.60724134	1/31/2024
Bray	Samuel	EMT	AEMT.ES.60601899	3/31/2023
Ritchey	Shawn	EMT	EMT.ES.00129280	5/31/2022
Yaeger	Jordan	EMT	EMT.ES60671654	6/30/2020
VanDam	Isaiah	EMT	EMT.ES.60913180	6/30/2022

We are in the process of onboarding an additional 7 EMTs and hiring 6 more RNs.

All of the RNs will complete the EMT bridge course after approval of this application.

RECEIVED

MAR 19 2021

DOH/HSQA/OCS

Trans-West Ambulance Service Response Area - Skagit County



Our response area includes:

Skagit Valley Hospital

Peace Health United General Hospital

Island Hospital

The various skilled nursing facilities and clinics in Skagit County including Skagit Regional Health, North Cascade Family Physicians Care Network, Seamar, Fidalgo Medical Associates.

MAR 19 2021
DOH/HSQA/OCS



© US POSTAGE \$001.60°

RECEIVED
NAR 19 2021
DOH/HSQA/OCS

EMS Credentialist P.O. BOX 47877 Olympia, WA 98504-7877

ACTION OF THE PARTY OF THE PART

New Initiative Fu	nding Grant Request	A CO
Company Name:	Skagit County Fire District 14	6
Company Phone:	360-724-3451	
Company Address:	18726 Parkview Lane	
Danto do Asserbira di		42 "
Partner Agencies (if a	any): Skagit Speedway	ASHINGTO
Initiative Title:	Saving Lives	
	n: Purchase of 5 AED's to be installed a key locations to be located in the pit's area.	in stands and
Proposed Start Date:	: <u>April 5, 2021</u> Proposed End Date: <u>April 16, 20</u>	021
\$9,895.20	One-Time Cost	Ongoing Cos
If ongoing, for	how long?	
Checklist (Required -	- Please attach all supporting documents)	
1. Description of in	itiative:	
Comments also as a second	AFD/	
***	o AED's on site at the Speedway, each race event atti	
spectators on any give	en event. In addition, the speedway offers camping si	tes during the race
season. Skagit Speedv	vay has trained EMS providers during each event, the	y currently do not have
access to AED's, relyir	ng on the response from local Fire/EMS agencies that	could be 10 to 15
minutes out.		3.
Supporting Docume	entation Attached N/A	
ongoing funding).	: (Attach detailed budget including all costs. If multi-) Budget Attached	ear, demonstrate
	enefits to entire EMS system: utside of the gated area accessible to the general public, the Speedway attr	acts fans from all over Skagit
County during the race season.	. Automatic defibrillation within the first few minutes of a cardiac arrest ha and accessible allows EMS responders to focus on other objectives during a	s been proven to save lives,
·		

New Initiative Funding Grant Request

Initiative Description;

Purchase and install (5) Zoll AED Plus School & Community AED's at strategic location around Skagit Speedway including one located outside the gates accessible by the general public year around.

Cost per unit \$1,824
 Project cost (5) units \$9,120
 Tax 8.5% \$775.20
 Total project cost \$9,895.20

There are no ongoing or additional cost, Skagit Speedway will provide the funding to maintain each device.

Supporting Documentation Attached	N/A

4. Data supporting benefits:
Defibrillation within the first minute of collapse, victim's chances for survival a
close to 90%. (Sudden Cardiac Arrest Association)
Supporting Documentation AttachedN/A
5. Determination of milestones:
This would be the first time in the history of the Speedway, they would have
lifesaving equipment available.
8
8 -1
Supporting Documentation AttachedN/A
6. Determination of potential roadblocks:
We do not foresee any potential roadblocks, if funded the Speedway
maintenance staff with assistance from Fire District 14 would determine the be
location to mount the devices, providing the best access for staff and the publi
Supporting Documentation AttachedN/A
7. Determination of successful initiative:
Mour Initiative Funding Court Province (Province Court Province Co
New Initiative Funding Grant Request (Revised 02 11 2021) Page 3 of

<u> </u>
Supporting Documentation AttachedN/A
8. Asset and dissolution plan should initiative not receive continued funding:
Supporting Documentation Attached N/A
9. Additional information and technical specifications:
oll AED Plus School & Community kit to include, Zoll AED, batteries, pads, case
asic cabinet, and signage.
Supporting Documentation AttachedN/A

Funding proposals will be evaluated on the following categories:

- <u>Total Budget</u> is it an affordable project?
- Impact Area serving the entire County scores higher than serving a single entity
- Work Level a single entity doing the workload will score higher than multiple entities doing the workload
- <u>Safety/Liability Risk</u> what is the risk to the community if this project is not implemented? Scores will be higher if there is a demonstrated risk to the community without this project.
- Resource Needs projects that can access resources needed from their own agency will score higher than those that need resources from multiple resources
- <u>Strategic Plan</u> define whether this fits into the County Strategic Plan, multiple agency or single agency plan. Scores will be higher for aligning with the County plan.
- Agencies access to resources If your agency is defined as a wilderness hub or rural with limited access, the score will be higher in this category than an urban agency with immediate access

Process:

- Advertisement: Announcement and listed on County Webpage by January 31, 2021
- Submission by Date: 1700 April 30, 2021 (electronic or physical copy acceptable)
- EMS Review by Date: May 15, 2021
- EMS Trauma Advisory Council Review Date: May 2021
- Notification Date: June 15, 2021
- Invoices for payment into EMS: December 15, 2021

Distribution of Program Funding: Up to 80% or 5K, whichever is higher, in 120 days.

Grant applications will be submitted to Administrative Coordinator at Skagit County EMS:

Freya Peebles Skagit County EMS 2911 East College Way, Ste. C Mount Vernon, WA 98274 freyaxp@co.skagit.wa.us

New Initiative Fu	nding Grant Request		IT CO	
Company Name:	Burlington Fire Department			
Company Phone:	(360) 755-0261			
Company Address:	350 E. Sharon Ave.	S	> { < }	
	Burlington, 98233		EMS	
Partner Agencies (if	any):		WASHINGTON	
Initiative Title:	Stryker Load System	0102		
frequent lifting of he	n: Safety and injury prevention of eavy patients, through the pure ower cots with load system k	chase and installation of	Stryker Load System,	
Proposed Start Date	June 15, 2021	Proposed End Date: Dec	cember 1, 2021	
X One-Time CostOngoing Cost If ongoing, for how long?				
Checklist (Required – Please attach all supporting documents)				
1. Description of initiative:				
and prevention of in patients throughout heavy lifting in awky to Firefighters and E immediate staff, to stretchers. Patients	er Power Load Systems for two njuries associated with lifting of t a 24 hour shift, with patients ward positions will help reduced MS providers. This reduction is surrounding agency personness also benefit from this initiation	of heavy patients. EMS property of the risk of short and long in risk and prevention will be who often assist with live through reduction of	roviders lift multiple nunds. Reduction in g term back injuries I extend beyond the ifting of patients on missed hook ups of	
Supporting Docume	ntation Attached N/A	- 11 11 1		
2. Cost break down ongoing funding).	: (Attach detailed budget inclu Budget Attached X		ar, demonstrate	
Power Load System	:		1- \$46,400.68	
			1- \$2,821.00	
	Power Load Cot Compatibility Upgrade Kit: 2- \$3,152.44			
Pro Care Cot Upgrad	Pro Care Cot Upgrade/ Install: 2- \$620.00			
Power Pro Care Loa	ver Pro Care Load System Preventative Maintenance/ 3 Year: 1- \$8,114.10			

\$60,887.22

Total:

3. Explanation of Benefits to entire EMS system: Implementation of this Initiative will positively impact risk reduction and injury prevention beyond the immediate benefit of the Burlington Fire Department. Surrounding Fire Hub and mutual aid agency personnel who often assist with lifting of patients on stretchers, will see the reduction in potential long term health and financial impacts related to lifting injuries. Benefits are also realized by the patients in reducing awkward loading of cot into ambulance by two person lift, as well as prevention of patient drops due to missed cot hook-ups. Supporting Documentation Attached _____ N/A_____ 4. Data supporting benefits: See attached documents demonstrating risk reduction benefits. Supporting Documentation Attached _____ N/A_____ 5. Determination of milestones: • Retrofit of Stryker Power Cot with Load Kit-July, 2021 Installation of Stryker Power Load System- August, 2021 • Training on Stryker Power Load System to Burlington Fire Personnel and Burlington Hub Districts (Training provided to other districts upon request) August, 2021 Preventative Maintenance on Annual Basis established by In Service date of equipment- Annually Supporting Documentation Attached _____ N/A_____ 6. Determination of potential roadblocks: Delay in delivery of purchased equipment due to supply and demand and availability Delay in installation due to availability of installer or scheduling conflicts Delay of "In Service" training and education due to scheduling conflicts Supporting Documentation Attached _____ N/A_____

7. Determination of successful initiative:

Primary success of this initiative is associated with acquisition, installation, training and education of Stryker Power Load and Cot adaptations. The primary success of this initiative would further be realized in the prevention or reduction in potential injuries associated with

lifting of heavy patients.
Supporting Documentation Attached N/A
8. Asset and dissolution plan should initiative not receive continued funding:
Funding would be one time funding for initial purchase of equipment and 3 year Preventative Maintenance Agreement. Further Preventative Maintenance Agreements would be funded
and maintained by the City of Burlington. No asset and dissolution plan needed due to one time expense purchase.
Supporting Documentation Attached N/A
9. Additional information and technical specifications:
Additional references and agency risk reductions cases included for supporting documentation.
Supporting Documentation Attached N/A

Funding proposals will be evaluated on the following categories:

<u>Total Budget</u> – is it an affordable project?

Impact Area – serving the entire County scores higher than serving a single entity

Work Level – a single entity doing the workload will score higher than multiple entities doing the workload

<u>Safety/Liability Risk</u> – what is the risk to the community if this project is not implemented? Scores will be higher if there is a demonstrated risk to the community without this project.

<u>Resource Needs</u> - projects that can access resources needed from their own agency will score higher than those that need resources from multiple resources

<u>Strategic Plan</u> – define whether this fits into the County Strategic Plan, multiple agency or single agency plan. Scores will be higher for aligning with the County plan.

<u>Agencies access to resources</u> – If your agency is defined as a wilderness hub or rural with limited access, the score will be higher in this category than an urban agency with immediate access

Process:

Advertisement: Announcement and listed on County Webpage by January 31, 2021 Submission by Date: 1700 April 30, 2021 (electronic or physical copy acceptable)

EMS Review by Date: May 15, 2021

EMS Trauma Advisory Council Review Date: May 2021

Notification Date: June 15, 2021

Invoices for payment into EMS: December 15, 2021

Total award amount: \$200,000

Distribution of Program Funding: Up to 80% or 5K, whichever is higher, in 120 days.

Grant applications will be submitted to Administrative Coordinator at Skagit County EMS:

Freya Peebles Skagit County EMS 2911 East College Way, Ste. C Mount Vernon, WA 98274 freyaxp@co.skagit.wa.us

stryker

Burlington Fire - Power-LOAD

Quote Number: 10344613

Version:

Prepared For:

Remit to:

Stryker Medical

P.O. Box 93308

BURLINGTON FIRE DEPT

Rep:

Kyle Howell

Attn:

Email:

kyle.howell@stryker.com

Chicago, IL 60673-3308

Phone Number:

(989) 295-7999

Quote Date:

04/15/2021 Expiration Date: 07/15/2021

Delivery Address		End User - :	End User - Shipping - Billing		Bill To Account	
Name:	BURLINGTON FIRE DEPT	Name:	BURLINGTON FIRE DEPT	Name:	BURLINGTON FIRE DEPT	
Account #:	1261527	Account #:	1261527	Account #:	1261527	
Address:	350 SHARON AVE	Address:	350 SHARON AVE	Address:	350 SHARON AVE	
	BURLINGTON		BURLINGTON		BURLINGTON	
	Washington 98233		Washington 98233		Washington 98233	

Equipment Products:

#	Product	Description	Qty	Sell Price	Total
1.0	639005550001	MTS POWER LOAD	2	\$23,200.34	\$46,400.68
2.0	6506700001	6506 PWRLD COMPAT UPGRADE KIT	2	\$1,497.41	\$2,994.82
4.0	77100003	ProCare Cot Upgrade or Install	2	\$310.00	\$620.00
			Equip	ment Total:	\$50,015.50

ProCare Products:

#	Product	Description	Years	Qty	Sell Price	Total
3.1	75011PT	ProCare Power-LOAD Prevent Service: Annual onsite preventive maintenance inspection and unlimited repairs including parts, labor and travel for MTS POWER LOAD	3	2	\$4,057.05	\$8,114.10
			Р	roCare 1	otal:	\$8,114.10

Price Totals:

Estimated Sales Tax (0.000%): \$0.00 Freight/Shipping: \$0.00 Grand Total: \$58,129.60

*s*tryker

Burlington Fire - Power-LOAD

Quote Number: 10344613

Remit to:

Stryker Medical

P.O. Box 93308

Version:

Prepared For:

BURLINGTON FIRE DEPT

Attn:

Rep:

Kyle Howell

Email:

kyle.howell@stryker.com

Chicago, IL 60673-3308

Phone Number:

(989) 295-7999

Quote Date:

04/15/2021 Expiration Date: 07/15/2021

Prices: In effect for 60 days.

Terms: Net 30 Days

Contact your local Sales Representative for more information about our flexible payment options.

Capital Terms and Conditions:

Deal Consummation: This is a quote and not a commitment. This quote is subject to final credit, pricing, and documentation approval. Legal documentation must be signed before your equipment can be delivered. Documentation will be provided upon completion of our review process and your selection of a payment schedule. Confidentiality Notice: Recipient will not disclose to any third party the terms of this quote or any other information, including any pricing or discounts, offered to be provided by Stryker to Recipient in connection with this quote, without Stryker's prior written approval, except as may be requested by law or by lawful order of any applicable government agency. A copy of Stryker Medical's Acute Care capital terms and conditions can be found at https://techweb.stryker.com/Terms. Conditions/index.html. A copy of Stryker Medical's Emergency Care capital terms and conditions can be found at https://www.strykeremergencycare.com/terms.

From: Howell, Kyle [mailto:Kyle.Howell@stryker.com]

Sent: Tuesday, March 16, 2021 2:25 PM
To: Dan Laine < danl@burlingtonwa.gov>
Cc: Howell, Kyle < Kyle.Howell@stryker.com>
Subject: Burlington Fire | Stryker Quotes

Hey Dan - Great to meet you! I put together a quote for you with all the below requested as well attached a WA - Powered System Packet.

Installation:

- Stryker can perform the upgrades to your cots this is reflected in your quote attached.
- Power-LOAD: Stryker has a 3rd party installer that can install the Power-LOAD to your ambulance floor and wire it up to your ambulance. His price is:

 Price: \$1,300

WA - Power System Packet - In the packet you will find:

- WA Reference Lists
- Product information
- Injury Reduction Studies and Cost Savings
- Injury prevention programs and statistics

Let me know anything else I can help with along with if you would like me to come by and show a demo for you. As well do you have a timeline on this project?

Looking forward to working with you!

Best,

Kyle Howell

Territory Manager

Stryker

Medical - Emergency Care (EMS & Physio Control)
Seattle Washington
C+1 989 295 7999
Kyle.Howell@stryker.com
http://www.strykeremergencycare.com/

KNB FIRE 1125 Lindsay Creek LEWISTON, ID 83501



Date 4/20/2021 Estimate # 179

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Burlington Fire Department Burlington, WA

P.O. # Terms

Due Date

4/20/2021

Other

Description	Qty	Rate	Total
Power Load Installation	2	1,300.00	2,600.00T
		Subtotal	\$2,600.00
		Sales Tax (8.5%)	\$221.00
		Total	\$2,821.00

KNB FIRE knbfire1@gmail.com knbfire.com

208-816-0269



Emergency Care

power packet



Together we save lives

This educational document is designed to provide information pieces on current dynamics within the EMS industry and methods to make your service safer, more efficient and improve your chain of survival.

We focus on reducing injuries and the costs associated with them. Within this piece there are studies from services just like yours that implemented the Stryker Powered System (Power-PRO stretcher and Power-LOAD) and saw tremendous decreases in injuries and costs associated with them.

Many states have adopted the new SAE J3027 crash safety standards that will be required on all new ambulances. The Stryker Powered System referenced in this piece will allow those states to be compliant with that standard while more importantly providing the greatest level of safety to your patients and providers.

Finally, there are a number of services referenced that have already implemented these Stryker systems and are seeing positive results right away. The Stryker Powered system removes effort required during lifting and lowering of the stretcher and loading and unloading of the stretcher and patient into the ambulance. At Stryker we are committed to improving clinical outcomes and partnering with our customers to provide solutions to their needs.

Please don't hesitate to reach out to me directly for any questions associated with these products. I have all of them available for demoing at your request.

Together let's save lives!

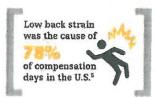
Kyle Howell

Account Manager Seattle WA Kyle. Howell@stryker.com C +1 989 295 7999



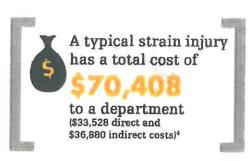
Did you know?

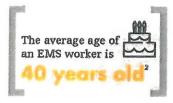


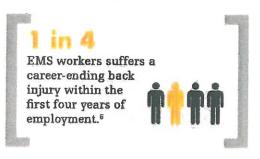


Lifting causes more than

70%
of back injuries for EMTs³







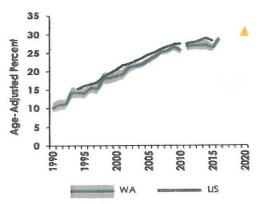
References

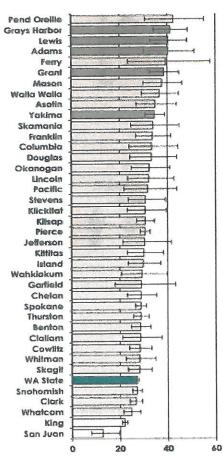
- 1. http://www.cdc.gov/nchs/fastats/obesity-overweight.htm
- 2. http://www.ems1.com/ems-management/articles/1193622-EMS-recruitment-strategiesfor-managers/
- 3. http://www.emsworld.com/press_release/11360397/frofighter-invents-product-toreduce-back-injuries
- 4 https://www.osha.gov/dcsp/emallbusiness/safetypays/estimator.html
- 5. http://www.emsworld.com/press_release/11360397/firelighter-invents-product-to-educe-back-injuries
- 6 Sanders, Mick J. (2011) Mosby's Paramedic Textbook (4th ed., p. 36)
- 7. http://ems.stryker.com/ Stryker's Powered System shown to reduce back related injuries.

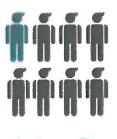
Copyright © 2015 Stryker Mkt Lit 1212 28 OCT 2015 Rev A.2

Washington Obesity

Obesity Prevalence Washington State & US BRFSS, 1990-2016

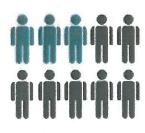






1 in 8

Washington 10th graders is considered obese



3 in 10

Washington adults are considered obese

In 2016, 29% (±1%) of Washington adults were obese, and 12% (±1%) of Washington 10th grade students were obese. Obesity among Washington adults increased from 1990 – 2010, but has recently been stable. Obesity among 10th grade students increased slowly from 2002 – 2016. The prevalence of obesity among Washington adults is similar to the U.S., but a lower percentage of Washington 10th graders are obese compared to the U.S.

Blacks, Hispanics, males, and adults with low incomes or less education are more likely to be obese compared to other Washingtonians. Among youth, obesity was more common among 12th graders and males. Native Hawaiian or Other Pacific Islander (NHOPI), Hispanic, American Indian and Alaskan Native (AIAN), and black 10th graders had higher obesity prevalence compared to white and Asian 10th graders.

Counting the **Pounds**



Pounds per Crewmember for each call

LBS per Crewmember (each call)	Manual Cot	Powered Cot	Powered Loading
Unload Stretcher	40	62	0
Transfer Patient	100	100	100
Lift Patient	140	0	0
Load Stretcher	140	81	0
Unload Stretcher	140	81	0
Lower Stretcher	140	0	0
Transfer Patient	100	100	100
Reload Stretcher	40	62	0
Sum of LBS/Call/Crewmember	840	486	200
LBS Lifted per Shift	4200	2430	1000
Reduction of Patient weight lifted	0%	42%	143%

Typical # of transports per ambulance per shift based on national averages Weight savings (LBS) for Powered cot vs Manual cot per shift

5

1770 lbs.

Weight savings (LBS) for Powered loading vs Manual cot per shift

Weight savings (LBS) for Powered loading vs Powered cot per shift

3200 lbs.

1430 lbs.

1 in 4

1 in 4 EMS workers will suffer a career ending back injury within their first four years in the field¹. The number one cause – Lifting. Our Power-PRO XT powered ambulance cot utilizes a battery-powered hydraulic system effectively raising and lowering a cot at the touch of a button. Use of the Power-PRO XT has proven to reduce spinal loading, resulting in reduced injuries, lost or modified workdays and Workers' Compensation costs, and increased recruitment and retention.



Proven to save guarantee

100% reduction in missed safety hooks

At Stryker we stand behind our products. For qualifying purchasers², upon standardization, Stryker offers a program that guarantees at least a 50% reduction in cot-related injuries pertaining to raising, lowering, loading and unloading cots and 100% reduction in missed safety hooks while unloading cots with the Power-PRO and Power-LOAD in full power operation. If not, Stryker will refund the price paid for the Power-PRO cots and Power-LOAD cot fastening systems.³

50% reduction in cot related injuries

Power-PRO®XT

Specifications

Model Number	6506			
Height' (infinite height positioni	ng between lowest and highest position			
Highest Position	41.5 in. (105 cm)			
Lowest Position	14 in. (36 cm)			
Length	100			
Standard	81 in. (206 cm)			
Minimum	63 in. (160 cm)			
Width	23 in. (58 cm)			
Weight ²	125 lb (57 kg)			
Wheels				
Diameter	6 in. (15 cm)			
Width	2 in. (5 cm)			

Articulation	
Backrest	0-73°
Shock Position	+15°
Optional Knee Gatch	30°
Maximum Weight Capacity ³	700 lb (318 kg)
Minimum Operator Required	0.76
Occupied Cot	2
Unoccupied Cot	1
Recommended Fastener System	
Power-LOAD	Model 6390
Floor Mount	Model 6370 or 6377
Wall Mount	Model 6371
Recommended Loading Height	Up to 36 in (91 cm)

Stryker reserves the right to change specifications without notice.

The Power-PRO XT is designed to conform to the Federal Specification for the Star-of-Life Ambulance KKK-A-1822.

The Power-PRO XT is designed to be compatible with competitive cot fastener systems.

Meets dynamic crash standards with Power-LOAD cot fastening system (AS/NZS-4535, BS EN-1789 and SAE J3027 with X-restraints) and Performance-LOAD cot fastening system (SAE J3027 with X-restraints). Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: Performance-LOAD, Power-LOAD, Power-PRO, Stryker, . All other trademarks are trademarks of their respective owners or holder.

The yellow and black color scheme is a registered trademark of Stryker Corporation

Power-LOAD®

Specifications

Model Number	6390			
Length				
Overall length	95 in (241 cm)			
Minimum length	89.5 in (228 cm)			
Width	24.5 in (62 cm)			
Weight				
Total weight	211.5 lb (96.5 kg)			
Floor plate assembly	16.5 lb (7.5 kg)			
Anchor assembly	23 lb (10.5 kg)			
Transfer assembly	67 lb (30.5 kg)			
Trolley assembly	105 lb (48 kg)			
0.20				

700 lb (318 cm)
2
1
n to 36 in (56 cm to 91 cm)
12 VDC, 5 Ah lead acid battery

Stryker Corporation or its divisions or other corporate affiliated entities own, use or have applied for the following trademarks or service marks: Flex Financial, Performance-PRO, Power-LOAD, Power-PRO, ProCare, SMRT, Stryker. All other trademarks are trademarks of their respective owners or holder.

*Maximum weight capacity represents patient weight and assessories. Safe working load of 870 lb (395 kg) represents the

The Power-LOAD Cot Fastener System is designed to conform to the Federal Specification for the Star-of-Life Ambulance KKK-A-1822.

- 1. Sanders, Mick J. (2011) Mosby's Paramedic Textbook (4th ed., p. 36)
- Please contract your sales representative to see if you qualify for the EMS Guarantee.Subject to the terms and conditions of EMS proven to save.
- 4. Reference: Stryker (2018). EMSStat Norman Regional Health System Case Study (Case Study on Power-PRO XT cots and Power-LOAD cot fastening systems). Retrieved from: http://ems.stryker.com
- 5 Reference: Stryker. (2012). Superior Ambulance Case Study | Case Study on Power-PRO XT cots|. Retrieved from: http://ems.stryker.com
 6.Emergency Medical Services Authority. (2015). Risk Reduction Success Story: Utilization of the Stryker Power-LOAD Cot Fastener System in the EMSA System. Tulsa, Oklahoma and Oklahoma City,
- Oklahoma: Emergency Medical Services Authority. *Data provided by EMSA

3800 E. Centre Avenue Portage, MI 49002 USA t: 269 329 2100

¹ Height measured from bottom of mattress, at seat section, to ground level.

² Cot is weighed with one battery pack, without mattress and restraints.

^{3 700} lb weight capacity with an unassisted lift capacity of 500 lb (Cot loads over 300 lb (136 kg) may require additional assistance to meet the set cot load height).

⁴ Can accommodate load decks up to 36 in. Load height can be set between 26 in and 36 in.

WA Power-PRO

Reference List



COULEE CITY FIRE DEPT

COWLITZ COUNTY FIRE

COWLITZ COUNY FIRE RESCUE 2

COWLITZ COUNTY FIRE RESCUE 6

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LEWIS COUNTY FIRE DISTRICT 11



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WOODINVILLE FIRE AND LIFE SAFETY

Washington Power-LOAD

Reference List

ABERDEEN FIRE DEPT AERO SKAGIT EMERGENCY SERVICE AMR SEATTLE 11700 ANACORTES FIRE DEPT ASOTIN COUNTY FIRE DISTRICT 1 BAINBRIDGE ISLAND FIRE DEPT BELLEVUE FIRE DEPT BELLINGHAM FIRE DEPT BENTON COUNTY FIRE DISTRICT 1 BENTON COUNTY FIRE DISTRICT 4 BENTON COUNTY FIRE DISTRICT 6 BREMERTON FIRE DEPT BRINNON FIRE DEPT CAMANO ISLAND FIRE AND RESCUE CASCADE AMB SVC CENTRAL KITSAP FIRE RESCUE CENTRAL PIERCE FIRE AND RESCUE CHEHALIS FIRE DEPT CHEWELAH RURAL AMAB CHEWELAH RURAL AMB CITY OF ARLINGTON CITY OF BELLEVUE CITY OF BOTHELL FIRE AND EMS CITY OF BRIDGEPORT CITY OF DUPONT FIRE DEPT CITY OF EVERETT FIRE DEP CITY OF KENNEWICK CITY OF KIRKLAND CITY OF OROVILLE CITY OF REDMOND CITY OF SNOOHALMIE FIRE DEPT CITY OF TACOMA FIRE DEPT COLFAX FIRE AND RESCUE COLUMBIA COUNTY FIRE DISTRICT 3 COWLITZ FIRE RESCUE 2 COWLITZ COUNTY FIRE COYOTE RIDGE CORRECTIONS CTR DEER PARK AMB INC DOUGLAS COUNTY FIRE DEPT 5 DOUGLAS COUNTY HOSP DISTRICT 2 DUVALL FIRE DEPT EAST PIERCE FIRE AND RESCUE EASTSIDE FIRE AND RESCUE EMS DISTRICT 1 ENUMCLAW FIRE DEPT EVERETT FIRE DEPT

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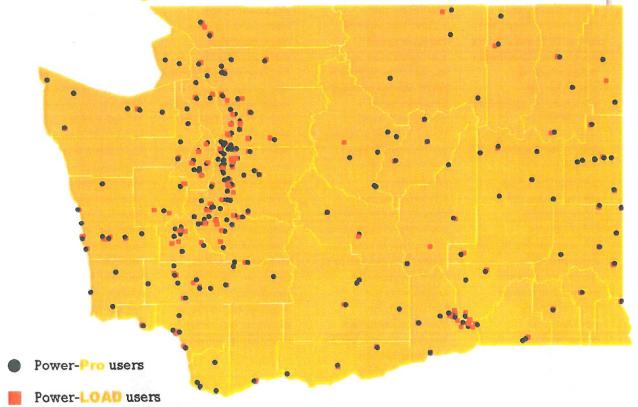


Stryker Powered System

By County & Zip Code

>150 Services in WA are currently using the

Powered System



100%

Powered System users

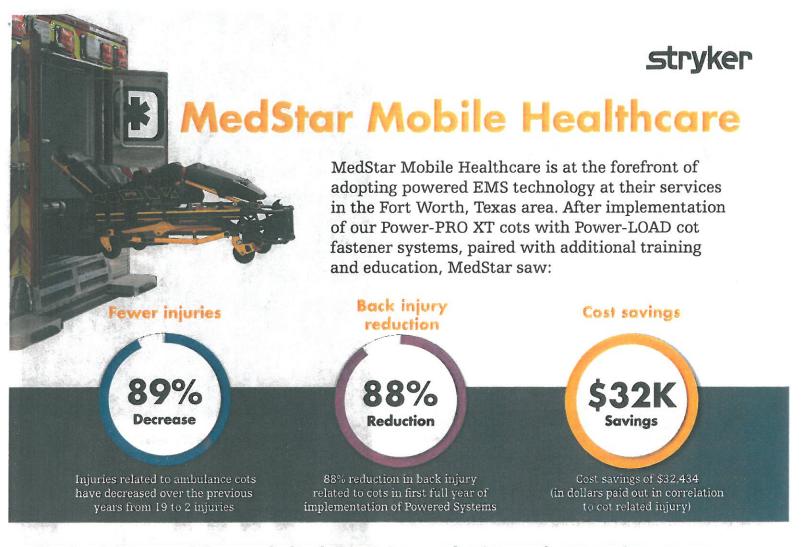
reduction in cot related injuries saved one service \$545,500 in 4.5 years.* 99%

of those surveyed agree our Powered System has made their job easier.² Adverse cot events reduced

96%

Injury reductions

by one service with the assistance of the Power-LOAD cot fastener system and Power-PRO XT cot.⁶



Stryker's Powered System helps bring injury reduction and cost savings

MedStar Mobile Healthcare serves the 436 square mile radius and over 978,000 residents of the Fort Worth, Texas metropolitan area. Their mission is "To provide world class mobile healthcare with the highest quality customer service and clinical excellence in a fiscally responsible manner." The service responds to around 125,000 emergency calls per year with their fleet of 57 ambulances and counting. MedStar strives to keep employees and patients safe in the pursuit to provide optimal care day-in and day-out. As a performance driven, high value governmental EMS agency operating without tax subsidy, MedStar constantly innovates to improve efficiency and provide the best care possible for their patients.

In recent years MedStar identified a continuous issue with strain and sprain injuries related to lifting and loading manual ambulance cots. MedStar began to proactively seek alternative options for their employees.

MedStar By the numbers





Ada County Paramedics

Stryker's Powered System Brings Injury Reduction and Improved Patient Handling

When Shawn Rayne, Deputy Director for the Ada County Paramedics considered the current status quo, he found a few things to be alarming. The average tenure had decreased to around eight years, and back injuries continued to be a key contributor to that reduction.

"We want people to retire from here without the life-long effects of a back injury, and every time a patient is lifted, there is a small toll taken on the back."

Shawn and the Ada County team began to re-evaluate their current fleet of Ferno 93H and 93P cots and consider different lift assisting options in EMS that would better serve their patients and providers. 2010 through 2013 saw injury rates of 17, 18, 11, and 14 respectively, and Ada County was ready to look at options that could improve these yearly statistics.

Making strides towards injury reduction

In 2014, the research and consideration for new products had come to completion. Ada County began the process of outfitting their rigs with the Stryker EMS Powered System (Power-PRO™ XT cots and Power-LOAD® cot fasteners). The change was strongly influenced by the interest in improving their employee's well-being and finding ways to best serve their large population in Idaho's Treasure Valley. The team considered multiple options, and in the end determined the Stryker Powered System of equipment would be best in serving their demographic of patients both large and small.

Proven innovation that brings tangible results

Ada County decreased their back injuries from a peak of 10 in 2010 to ZERO in 2014 and 2015 with the assistance of the Power- LOAD cot fastening system and Power-PRO XT cot. This is a reduction that they are proud to provide to their employees.

Keeping a crew of 105 full-time employees healthy is a tall task and one that the Ada County team focuses on each and every day. The service handles a large volume of calls in the highly populated Treasure Valley area and needs employees that are healthy and engaged to keep up with the high demand for care.

Having 13% of their employees experience on the job injuries in 2013 brought a need for action and one that has had a positive impact on the Ada County team1.

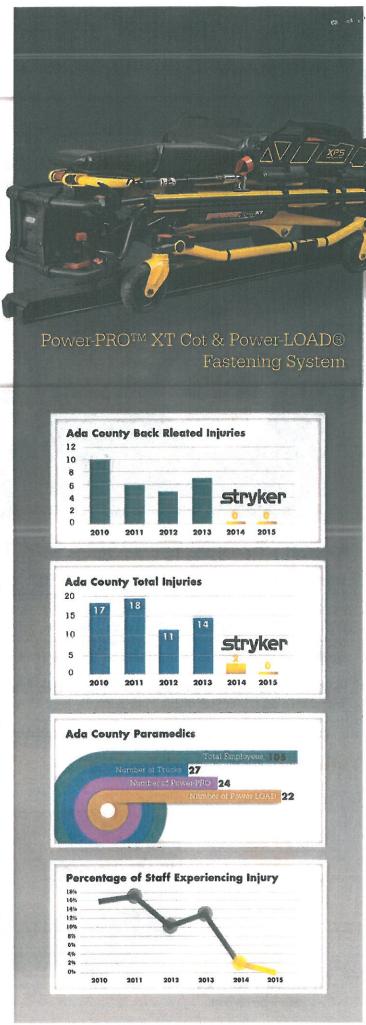
"The investment was worth the reward; and the community has been affected in a positive way through the improved patient handling during loading and unloading."

Ada County was initially attracted to the design and function of the Power-PRO XT and Power-LOAD, but has since become increasingly attracted to the injury reduction and cost savings that the products have provided them.

"These Stryker products are now used in our recruitment efforts and advertising for our service. We believe these to be a positive differentiation point for Ada County."

Ada County now sports a full line of Stryker EMS equipment that supports them through all points of the call. Their Stair-PRO chairs assist in the processes involved in going up and down the stairs and extracting patients from facilities, while their powered cots and fasteners dramatically improve the raising and lowering and loading and unloading of patients.

Mkt Lit-1153 10 JUL 2015 Rev A.0 Copyright© 2015 Stryker



stryker

Staff satisfaction

Caregivers agree that the stryker powered system increases staff satisfaction.

Situation

Staff satisfaction has become increasingly important in today's care giving environment. Employee satisfaction is a key input to delivering high-quality patient care—dissatisfied employees will pass those burdens onto patients, which can negatively affect the patient satisfaction and quality metrics connected to financial reimbursements.

Medical equipment manufacturers now produce an increasing number of ergonomically efficient pieces of equipment to help prevent workplace injuries, and improve employee satisfaction.1

Although providers may face short-term budgetary constraints, the long-term financial benefits of increased employee recruitment and retention, reduced health benefits expenses, and increased patient satisfaction are worth partnering with vendors to address workplace hazards.1

Feedback Form

Stryker asked caregivers who have been using the Stryker EMS Powered System (Power-PRO™ XT and Power-LOAD®) from around the country to fill out a feedback form related to their Stryker equipment experience. In total, there were 250 participants from 16 states representing different regions of the country. The results are shown below.

Feedback Form Results

99% 88% 85% 98%

of those surveyed agree the Stryker Powered System has made their job easier.² agree the Stryker Powered System has helped them become more efficient.² agree the Stryker Powered System has improved their on the job satisfaction.² agree that they are satisfied with the Stryker Powered System.²

6699

"It's the best investment we've made!"

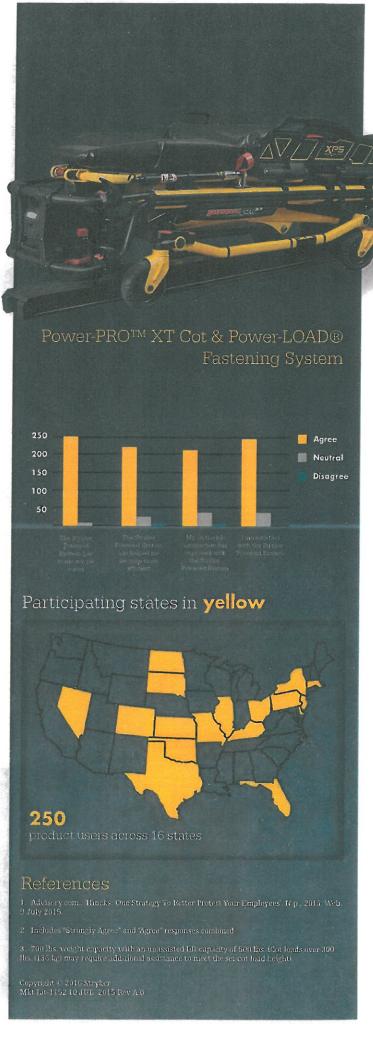
David Kutz--Director and Paramedic Comanche County Ambulance Service--Coldwater, Kansas

"We absolutely love our Power-PRO and Power-LOAD system. The reduction in lifting and ability to load patients large and small with the push of a button3 is awesome!"

Thomas Lichty--Director of Environmental Services Avera Hand County Memorial Hospital--Miller, South Dakota

Conclusion

The potential link between staff satisfaction and patient satisfaction, and their ultimate correlation to overall financial performance cannot be overlooked. The results of this survey show that users of the Stryker EMS Powered System from across the country agree that this equipment has helped to improve their overall level of staff satisfaction.



estimated uses of Power-PRO®1.



Power-PROs have been used across the United States2.



Power-LOADs have been used across the United States³.

prefer to work at a service with Power-PRO and Power-LOAD* Of survey respondents would



Year after year the Power-PRO has proven itself out in the field, undertaking every scenario.



the most reliable equipment, and world. When you're out serving people day after day, you want numbers don't lie. For the past that's what we are giving you. 14 years, our quality has been proven and trusted across the We are setting the standard. When it comes to quality,



tests.

why we have conducted more than 161 tests on the Power-PRO XT to ensure a reliable and trusted product is in your hand. Quality is of upmost importance at Stryker. That's



certification.

We receive certifications from a Nationally Recognized Test Lab to ensure our results are non-biased.

IEC 60601-1

certification.

New Initiative Fu	nding Grant Request		OT CO
Company Name	Mount Vernon Fire Dept		G
Company Name: Company Phone:	360-336-6277		
Company Address:	1901 N LaVenture Rd		5 / (2)
	Mount Vernon, WA 98273		EMS
Partner Agencies (if a	any):		MASHINGTON
Initiative Title:	Doppler utilization for improve	ved CPR efficacy	
Initiative Description	The purchase, and training in the	ne utilization, of hand-	held doppler devices to ensure
adequate perfusion	and improved detection of pul	ses during cardiopu	lmonary resuscitations.
Proposed Start Date:	June 2021	Proposed End Dat	e:
X One-Time Cos	t Ongoing Cost	If ongoing, for how	v long?
Checklist (Required –	———— Please attach all supporting do	ocuments)	
1. Description of ini		,	
-	ctive method for EMS providers to	n measure adequate	CPR is through the manual
-	oulse. However, this method has	-	-
	ently misdiagnose pulselessness		
·	be benefit of real-time audible feed	,	, , , , , , , , , , , , , , , , , , , ,
	ow is occurring (Wang, 2019). Th		
-	anoska, 2018). Our EMS provide	-	•
•	undoubtedly benefit from funding		_
utilization on ALS units.	•		
Supporting Docume	ntation Attached X N/A		
Cost break down: (A ongoing funding).	ttach detailed budget including Budget Attached X	•	ear, demonstrate
2. Explanation of B	enefits to entire EMS system:	:	
All ALS Agencies should	d poses and be trained to use ha	ndhled Dopplers durir	ng CPR and other vascular
emergencies. All resider	nts of Skagit County would benef	<u>it. Funding this initiati</u>	ve would directly impact
patients that are attended	ed to by MVFD ALS units.		
Supporting Docume	ntation AttachedN/A X		

Page **1** of **4**

New Initiative Funding Grant Request (Revised 02-11-2021)

3. Data supporting benefits:
See attached Citations including NIH article "Handheld Doppler to Improve Pulse Checks
during Resuscitation of Putative Pulseless Electrical Activity Arrest"
Supporting Documentation Attached X N/A
4. Determination of milestones:
OBJECTIVE:
Metrics of CPR will be tracked through data obtained from ESO and Zoll Case Review.
Specific objective goal will be shorter pauses during CPR Pulse/Rhythm Checks
SUBJECTIVE:
Personnel will periodically be surveyed to determine perceived benefits
Supporting Documentation Attached N/A X
5. Determination of potential roadblocks:
Initial Training:
Handheld dopplers will be new equipment so training personnel to be familiar with them and habituate
their use will be the primary roadblock. Periodic training and refreshers are anticipated.
Maintenance:
Like all equipment, proper maintenance and accountability will be an ongoing concern
Supporting Documentation AttachedN/A_X
6. Determination of successful initiative:
The success of the initiative will be monitored through measurement of our Objective
and Subjective milestones as listed above.

Supporting Documentation AttachedN/A_X_
7. Asset and dissolution plan should initiative not receive continued funding:
This initiative requires only One Time Funding of the assets.
Supporting Documentation AttachedN/A_X_
8. Additional information and technical specifications:
At this time the specific hand held doppler for purchase has not been identified. Further analysis of the available
products will occur with input from end users for the final purchase decision.
Supporting Documentation AttachedN/A_X

Funding proposals will be evaluated on the following categories:

- Total Budget is it an affordable project?
- Impact Area serving the entire County scores higher than serving a single entity
- Work Level a single entity doing the workload will score higher than multiple entities doing the workload
- <u>Safety/Liability Risk</u> what is the risk to the community if this project is not implemented? Scores will be higher if there is a demonstrated risk to the community without this project.
- Resource Needs projects that can access resources needed from their own agency will score higher than those that need resources from multiple resources
- <u>Strategic Plan</u> define whether this fits into the County Strategic Plan, multiple agency or single agency plan. Scores will be higher for aligning with the County plan.
- Agencies access to resources If your agency is defined as a wilderness hub or rural with limited access, the score will be higher in this category than an urban agency with immediate access

Process:

- Advertisement: Announcement and listed on County Webpage by January 31, 2021
- Submission by Date: 1700 April 30, 2021 (electronic or physical copy acceptable)
- EMS Review by Date: May 15, 2021
- EMS Trauma Advisory Council Review Date: May 2021
- Notification Date: June 15, 2021
- Invoices for payment into EMS: December 15, 2021

Distribution of Program Funding: Up to 80% or 5K, whichever is higher, in 120 days.

Grant applications will be submitted to Administrative Coordinator at Skagit County EMS:

Freya Peebles Skagit County EMS 2911 East College Way, Ste. C Mount Vernon, WA 98274 freyaxp@co.skagit.wa.us

1. Supporting Documentation

The goal of cardiopulmonary resuscitation is to circulate blood, which carries oxygen, throughout the body and delays tissue death until the heart can be restarted.

Currently EMS professionals have very limited tools to measure the quality of CPR they provide. The Zoll offers many features that aim to improve the rate and depth of compressions through the use of an exterior accelerometer. This is a rudimentary option that gives purely mechanical feedback with no detection of the impact on a patient's cardiovascular system. In recent years, ETCO2 has become the gold-standard indicator of effective CPR because it can detect when actual respiration is occurring at the cellular level. Unfortunately, this tool has many confounding factors in measuring an accurate ETCO2 that make it occasionally very specific but generally non-sensitive as an indicator for high-quality CPR (Paiva, 2018).

The most effective method for EMS providers of MVFD to measure adequate CPR is a manual palpation of a patient's pulse. But even a providers hand, directly detecting the pulsatile flow of a patient's femoral artery, has its limitations. According to Schonberger, et al, "trained medical personnel demonstrate a specificity for the manual diagnoses of pulselessness of only 55% (2014)." However, studies from as far back as 1978 (Grunau) have pointed out that there is a better tool that EMS agencies can deploy to improve the efficacy and outcomes in CPR, a doppler. A simple portable doppler gives providers real-time feedback of the impact they are having on the patients' arterial blood flow (Wang, 2019) and an opportunity for rapid detection of ROSC (Germanoska, 2018)

Citations

Germanoska B, Coady M, Ng S, Fermanis G, Miller M. The reliability of carotid ultrasound in determining the return of pulsatile flow: A pilot study. Ultrasound. 2018 May;26(2):118-126. doi: 10.1177/1742271X17753467. Epub 2018 Jan 29. PMID: 30013612; PMCID: PMC6042301.

Grunau CF. Doppler ultrasound monitoring of systemic blood flow during CPR. JACEP. 1978 May;7(5):180-5. doi: 10.1016/s0361-1124(78)80095-1. PMID: 651071.

Paiva EF, Paxton JH, O'Neil BJ. The use of end-tidal carbon dioxide (ETCO₂) measurement to guide management of cardiac arrest: A systematic review. Resuscitation. 2018 Feb;123:1-7. doi: 10.1016/j.resuscitation.2017.12.003. Epub 2017 Dec 5. PMID: 29217394.

Schonberger RB, Lampert RJ, Mandel EI, Feinleib J, Gong Z, Honiden S. Handheld Doppler to improve pulse checks during resuscitation of putative pulseless electrical activity arrest. Anesthesiology. 2014 Apr;120(4):1042-5. doi: 10.1097/ALN.0000000000000106. PMID: 24335750; PMCID: PMC3975650.

Wang H, Zhang S, Gao B. [Feasible study of carotid artery Doppler ultrasound blood flow measurement during chest compression cardiopulmonary resuscitation]. Zhonghua Wei Zhong Bing Ji Jiu Yi Xue. 2019 Mar;31(3):309-312. Chinese. doi: 10.3760/cma.j.issn.2095-4352.2019.03.010. PMID: 30914091.

2. Cost Breakdown

Materials: up to \$2,200

\$730 per unit x 3



Labor: \$0

Training for all MVFD Operations Personnel would occur on shift and would be done during pre-planned "Medical Mondays" by the Nurse Educator.

Total Top End Estimate:

\$2,200



Anesthestology. Author manuscript, available in 1 We 2015 April (

Published in final edited form as:

Anesthesiology. 2014 April; 120(4): 1042–1045. doi:10.1097/ALN.000000000000106.

Handheld Doppler To Improve Pulse Checks during Resuscitation of Putative Pulseless Electrical Activity Arrest

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Section of Cardiology; Department of Internal Medicine; Yale School of Medicine; New Haven, CT

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Renal Division; Brigham and Women's Hospital; Brookline, MA

Jessica Feinleib, MD, PhD,

Department of Anesthesiology; Yale School of Medicine. and VA Connecticut Healthcare System; West Haven, CT

Zhaodi Gong, MD, PhD, and

Department of Anesthesiology; Yale School of Medicine; New Haven, CT

Shyoko Honiden, MD, MSc

Section of Pulmonary/Critical Care; Department of Internal Medicine; Yale School of Medicine; New Haven, CT

INTRODUCTION

The difficulty of determining pulselessness via manual palpation in simulated cardiopulmonary resuscitation (CPR) has been well-documented in the literature. Prior studies have suggested that trained medical personnel demonstrate a specificity for the manual diagnoses of pulselessness of only 55%. Other research has confirmed the poor diagnostic accuracy of manual pulse checks in a wide spectrum of test subjects - from non-medical personnel to critical care physicians. All These data, along with accumulating evidence for the importance of early, high quality chest compression to improve outcomes from out-of-hospital cardiac arrest, have led the American Heart Association to eliminate pulse checks from their algorithm for bystander CPR.

In this context, the Advanced Cardiac Life Support (ACLS) algorithm for the treatment of Pulseless Electrical Activity (PEA) arrest presents an interesting dilemma, as the very diagnosis of the PEA condition is predicated, by definition, on the finding of pulselessness. Although unnecessary chest compressions during bystander CPR are considered a relatively benign intervention, the failure to promptly diagnose the return of spontaneous circulation during in-hospital PEA Arrest may delay the institution of more targeted and appropriate care modalities. Ambiguity about the presence of spontaneous circulation during

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Meeting Presentation: A portion of this work was presented at the American Society of Anesthesiologists 2013 Journal Symposium; October 15, 2013; San Francisco, CA.

Conflicts of Interest: The authors declare no competing interests.

^aHighlights of the 2010 American Heart Association Guidelines for CPR and ECC. American HeartAssociation, 2010. (Accessed August 16, 2013, at http://www.heart.org/idc/groups/heart-public/@wcm/@ecc/documents/downloadable/ucm_317350.pdf.)

resuscitation is among many factors that contributes to the challenging task of "running a code."

Therefore, in order to assess possibilities for improving the detection of the return of spontaneous circulation during in-hospital resuscitation, we conducted a prospective case series (N=8) during which handheld Doppler pulse checks were performed in parallel with standard ACLS procedures during resuscitation of adults with putative PEA arrest or on whom electrocardiogram pads had not yet been placed in an academic tertiary care hospital. The outcomes of interest were: 1) To measure the incidence of Doppler-positive-palpationnegative pulse in patients undergoing resuscitation for putative PEA arrest, and 2) To measure blood pressure in discordant cases of Doppler-positive-palpation-negative putative PEA arrest.

This prospective study was approved by the Yale Human Investigation Committee, including a waiver of informed consent. Investigators applied a portable Doppler (Dopplex Pocket Doppler D900 Vascular Ultrasound with 8MHz probe, Huntleigh, United Kingdom) to an available femoral artery during inhospital resuscitation attempts for putative PEA arrest or in situations of unknown cardiac rhythm prior to electrocardiogram lead placement. The Dopplex D900 with associated probes has been deemed by the Food and Drug Administration to be substantially equivalent to other portable ultrasound devices routinely used for blood flow monitoring. While this technology has been in existence for several decades, the sensitivity and specificity of such devices for detecting pulsatile flow during CPR remain unknown.

For inclusion in the study, a putative PEA rhythm was defined as an organized rhythm in the absence of a manual pulse, excluding ventricular tachycardia and ventricular fibrillation. To be included in the case series, subjects also had to meet the following criteria: 1) age > 18 years, 2) ongoing CPR, and 3) availability of a peripheral site for application of a Doppler probe. For included subjects, audible Doppler pulse checks occurred in addition to standard ACLS procedures simultaneously with manual pulse checks. The site of manual pulse checks was not dictated by the research protocol. Doppler pulse checks occurred at an available femoral location that was not being used for the manual pulse check. In the event of a discordant finding of Doppler-positive-palpation-negative pulse, a repeat pulse check and blood pressure measurement were requested, with all management decisions left to the discretion of the code-runner. The cases represent a convenience sample of codes that occurred during times that a study investigator was available to respond. Codes occurred at a tertiary care hospital at which approximately 24 codes are called per month overhead, of which approximately 15% are true cardiac arrests.

DESCRIPTION OF CASES

Summary

A total of 8 subjects underwent the protocol. Discordant Doppler-positive-palpation-negative pulse checks occurred in 5 of 8 cases for an estimated incidence of 62.5% (95% CI 29–96%). In 3 of the 5 discordant cases, manual pulse checks following the finding of Doppler pulsatility resulted in a positive manual pulse check. In 1 of the 5 discordant cases, a radial artery catheter was successfully placed before repeat manual pulse check occurred, confirming pulsatile flow. In the fifth discordant case, repeat manual pulse check was negative followed by a visually confirmed pulse from a bounding carotid artery. Systolic

b 2005 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Part 7.2: Management of Cardiac Arrest. American Heart Association, 2005. (Accessed August 25, 2013, at http://circ.ahajournals.org/content/112/24 suppl/IV-58.full.)

blood pressures in the discordant group ranged from 58–160mmHg with a mean of 106 mmHg. Diastolic blood pressures ranged from 30–100mmHg with a mean of 56 mmHg. 4 of 5 Doppler positive/manual negative cases survived to intensive care unit (ICU) admission and none of the 3 concordant cases lacking pulsatile flow survived to ICU admission.

Case 1

Investigators applied the Doppler to the femoral artery site of a 45-year-old male undergoing chest compressions for lack of pulse and prior to placement of electrocardiogram leads. During CPR, manual and Doppler pulse checks occurred at both radial and femoral locations without discordance (lack of pulse was found in both locations by both modalities). After placement of electrocardiogram leads, asystole was identified. Despite the continuation of CPR, there was no return of spontaneous circulation, and resuscitation efforts were eventually halted.

Case 2

Investigators applied the Doppler to the femoral artery site of an 82-year-old male undergoing chest compressions for a putative PEA rhythm. At the first Doppler pulse check, there was a concordant finding of pulselessness. At the second Doppler pulse check, there was a discordant Doppler-positive-palpation-negative pulse. Compressions resumed at the direction of the code-runner without a repeat manual pulse check. At the next pulse check, a discordant Doppler-positive-palpation-negative pulse again occurred. A repeat manual pulse check was again negative at which time a member of the code team visually recognized the presence of a pulse in the form of a bounding carotid artery. A non-invasive blood pressure was measured at 160mmHg/100mmHg. The patient survived to ICU admission.

Case 3

Investigators applied the Doppler to the femoral artery site of a 72-year-old male undergoing chest compressions for a putative PEA rhythm. During CPR, manual and Doppler pulse checks found no pulse throughout the code. There was no return of spontaneous circulation, and resuscitation efforts were eventually halted.

Case 4

Investigators applied the Doppler to the femoral artery site of a 79-year- old male undergoing chest compressions for a putative PEA rhythm. At the first Doppler pulse check, there was a discordant Doppler-positive-palpation-negative pulse. Compressions resumed at the direction of the code-runner without a repeat manual pulse check. At the next pulse check, a concordant Doppler-positive-palpation-positive pulse occurred. A non-invasive blood pressure was measured at 58mmHg/30mmHg. Resuscitation efforts continued, including intermittent chest compressions based on manual pulse checks, and the patient survived to ICU admission.

Case 5

Investigators applied the Doppler to the femoral artery site of a 72-year-old female undergoing chest compressions for a putative PEA rhythm that developed during a surgical procedure. At the first Doppler pulse check, there was a concordant finding of pulselessness. At the second Doppler pulse check, there was a discordant Doppler-positive-palpation-negative pulse. A radial artery catheter was placed at this time demonstrating a blood pressure of 80mmHg/50mmHg. In the presence of an arterial line, manual and Doppler pulse checks were no longer performed. The patient eventually expired prior to leaving the operating room.

Case 6

Investigators applied the Doppler to the femoral artery site of a 35-year-old male undergoing chest compressions for a putative PEA rhythm. During CPR, manual and Doppler pulse checks confirmed pulselessness at multiple timepoints without discordance. There was no return of spontaneous circulation, and resuscitation efforts were eventually halted.

Case 7

Investigators applied the Doppler to the femoral artery site of a 54-year-old male undergoing chest compressions for a putative PEA rhythm. At the first Doppler pulse check, there was discordance between a Doppler-positive pulse and an "ambiguous" manual pulse. A repeat manual pulse check was performed, and a pulse was identified. A non-invasive blood pressure was concurrently measured at 102mmHg/54mmHg. The patient survived to ICU admission.

Case 8

Investigators applied the Doppler to the femoral artery site of a 59-year-old male undergoing chest compressions who had been shocked from pulseless ventricular tachycardia into a putative PEA rhythm. At the first Doppler pulse check, there was a discordant Doppler-positive-palpation-negative pulse. A repeat manual pulse check was performed, and a pulse was identified. A non-invasive blood pressure was measured at 127mmHg/42mmHg. The patient survived to ICU admission.

DISCUSSION

The present case-series suggests that during attempts at in-hospital resuscitation, standard manual pulse checks frequently lag behind the Doppler recognition of the return of spontaneous circulation. The failure to identify a pulse on manual palpation may occur across a wide range of blood pressures, including in the presence of significant systemic hypertension.

Prior studies have documented the difficulty of determining pulselessnes via manual palpation. In one study for example, investigators used a cardiopulmonary bypass model of pulselessness in a group of 206 emergency medical technician and paramedic trainees and practitioners. They brought subjects into a cardiac operating room and asked them to determine the presence or absence of a pulse by palpation of the carotid artery without knowing the cardiopulmonary bypass status of the patient before them. The median time to diagnosis of pulselessness among study subjects was 30 seconds. When asked to evaluate the group of patients who were not on cardiopulmonary bypass, 45% of study subjects made an incorrect diagnosis of pulselessness despite systolic pressures > 80mmHg. Conversely, when patients were on bypass, 10% of participants diagnosed a positive carotid pulse despite the absence of pulsatile flow. When pulsatile flow was found, it took a median of 15 seconds to make this determination.

A second group of investigators inserted aortic pressure catheters in patients undergoing CPR. They found that of 94 patients who were diagnosed clinically with electro-mechanical dissociation (since re-named PEA), 41% were found to have measurable aortic pulsations. Two of these patients were found to have systolic pressures greater than 90mmHg.⁵

In the present case-series, the observation that 3 of 5 discordant cases were subsequently found to have a manually palpable pulse suggests that the addition of a portable Doppler to resuscitation efforts may enhance the accuracy of manual pulse checks. The portable Doppler pulse check is a practical and easily performed intervention that may help to

address the difficulty of assessing pulsatility in a reliable and timely fashion. However several limitations of the present case series should be highlighted. Most importantly, the effects on patient-outcomes of increasing the sensitivity of pulse checks during CPR are not known. Given the small convenience sample reported in the present case series, the benefits of Doppler pulse checks remain speculative. Among the potential benefits includes the possibility that the addition of Doppler pulse checks could prevent premature abandonment of the resuscitation effort based on an incorrectly negative manual pulse check. Supporting this notion, recent evidence has described significant differences in resuscitation times between hospitals, with more favorable outcomes associated with institutions that continue resuscitation for longer periods.⁶ It is also possible that of the 3 concordant cases, some may have had spontaneous circulation that was missed by both pulse-check modalities which, if true, could imply that Doppler pulse checks are not sufficiently sensitive to prevent premature abandonment of resuscitation efforts. Further study is needed to investigate whether Doppler pulse checks may prove a useful addition to future in-hospital resuscitation algorithms.

Acknowledgments

<u>Funding:</u> This research was funded in part by resources from the Department of Anesthesiology; Yale School of Medicine; New Haven, CT, and the National Institutes of Health (Bethesda, MD) Grant T32 GM086287, Principal Investigator. Laura E Niklason

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