

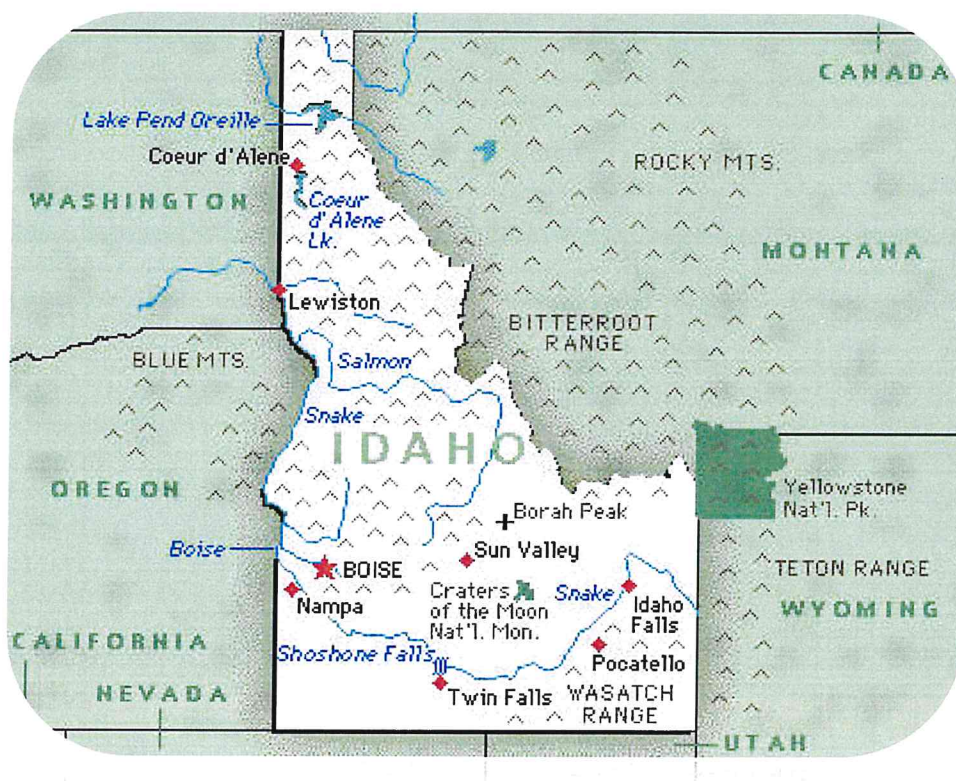
# JREM Rural Spotlight - Idaho

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When you have seen one rural emergency system, you've seen one rural emergency system. With this issue, JREM introduces a new series to highlight the unique attributes of each rural system, state-by-state.

## IDAHO QUICK FACTS



Idaho is the 13<sup>th</sup> largest state in the U.S. covering an area of 83,557 square miles. Idaho is bordered by Washington, Oregon, Nevada, Utah, Wyoming, Montana and Canada. 63% of Idaho is public land. Idaho's population is around 1.6 million with about 600,000 in the Boise metro area. Idaho has 3,100 miles of rivers—more than any other state. Idaho's largest cities are Boise, Nampa, Idaho Falls and Pocatello. Idaho is the number one producer of Potatoes, Trout, Austrian Winter Peas and Lentils. The population density of Idaho is only 19.5 persons per square mile.

## JREM Rural Spotlight-Idaho

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Idaho covers two time zones, runs from Canada to Nevada, and encompasses the western side of the continental divide of the Rocky Mountains. Rivers, mountains and farmland dominate the state's landscape. The pandhandle has emerald green hillsides, timbered mountains and pristine lakes. Central Idaho is covered with jagged peaks. The Snake River Plain, with its wide open vistas, irrigated farm lands and vibrant cities forms the character of Southern Idaho.



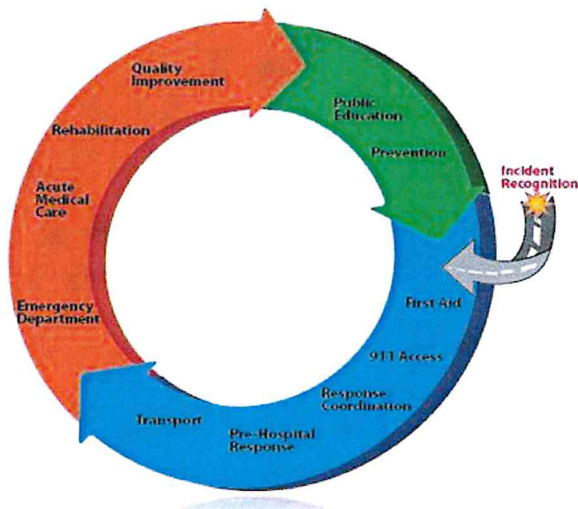
*Covered from the north to south by the Rocky Mountains, Idaho contains over 114 individual mountain ranges.*



# Time Sensitive Emergencies Idaho

The 2014 Idaho Legislature approved and funded a plan to develop a statewide Time Sensitive Emergency (TSE) system of care that will include three of the top five causes of deaths in Idaho: trauma, stroke and heart attack. Numerous studies throughout the United States show that organized systems of care improve patient outcomes, reduce the frequency of preventable death and improve the quality of life of the patient and long-term recovery. A TSE system of evidence-based care addresses public education and prevention, 911 access, response coordination, pre-hospital response, transport, hospital emergency/acute care, rehabilitation and quality improvement. A TSE program creates a seamless transition between each level of care and integrates existing community resources to improve patient outcomes and reduce costs. It will get the patient to the right place in the right time with the right care. The following guiding principles are the foundation for the TSE system:

- Provide nationally accepted evidence based practices to TSE;
- Ensure that standards are adaptable to all providers wishing to participate;
- Ensure that designated facilities institute a practiced systematic approach to TSE;
- Reduce morbidity and mortality from TSE;
- Design inclusive systems for TSE;
- Participation is voluntary; and
- Data are collected and analyzed to measure the effectiveness of the system.



*Idaho had been one of only a few states without statewide top down organized systems of care for trauma, stroke and heart attack.*

## Time Sensitive Emergencies



Trauma, Stroke, and Acute MI are three of the top five causes of death in Idaho, a predominately rural state.

### STEMI ALERT North Idaho



Field diagnosis and EMS STEMI alert plan reduces EMS to balloon time (E2B) in a rural Idaho county.

### Tele-Medicine Networks



The Boise, Idaho-based, St Alphonsus Health System has developed telemedicine that has saved the system in medical transport costs and has allowed more patients to be treated in their local communities.



Combining remote control robotics and remote presence technologies, the RP-7i® allows a remote clinician to see and interact with patients and staff just as if they were physically present on-site.

Idaho is a very rural state with many critical access hospitals that don't have access to specialists that are available in an urban center.

The legislation will enable the Idaho Department of Health and Welfare to work toward creating the framework for a statewide comprehensive system of care for TSE in Idaho. Idaho is now in the beginning stages of a continuous process for full development of this system of care. Initial efforts have established a governor-appointed TSE Council. Regional committee formation, rule promulgation, and updates to the existing trauma registry to include heart attack and stroke data are under development now.



# STEMI Alert Bonner County, ID

Primary percutaneous coronary intervention (PCI) has become the standard of care for the management of ST-elevation myocardial infarction (STEMI) patients when rapid door-to-balloon (D2B) times can be achieved in < 90 minutes. Rural communities have diverse challenges that may prevent the timely use of primary PCI care. Patients or family may have a reluctance to call 911 for symptoms of a heart attack. There are often wide variations in distances from the field or the rural ED hospital to the primary PCI hospital. Seasonal inclement weather may limit travel and transport options. Initial rural ED hospital evaluations and treatment times combined with receiving ED hospital times may contribute to significant delays in definitive care. Due to these factors, many rural hospitals have become primary thrombolytic sites that “drip and ship” because of the potential long times from initial STEMI diagnosis to interventional cardiology care (E2B).



*Bonner County is in the northern panhandle of Idaho. Covering an area of 1920 sq. miles with a population of 40,877. Sandpoint on Lake Pend Oreille is the largest city with a population of 7,397*

Bonner General Health (BGH) is a rural critical access hospital located in the North Idaho panhandle and is 50 miles from Kootenai Health (KH), the nearest PCI cath-capable facility. Bonner County (BC) is diverse geographically and covers an area of over 1,920 square miles that includes mountain ranges, lakes and rivers. A STEMI Alert plan was instituted in 2010 wherein STEMI patients are transported by ground ambulance directly from the field to KH for primary PCI. In addition, patients who present to BGH Emergency Department with STEMI are transferred directly to KH primary PCI utilizing county 911 dispatch and the existing 911 EMS personnel.

paramedic and the accepting cardiologist. The cardiologist may order oral antiplatelet medications to be given en route. Critical care trained (CCT) paramedics following STEMI Alert care guidelines may also administer aspirin, heparin, beta-blockers, nitrates and narcotics. As a part of the pre-planning for this STEMI Alert Plan, KH has administratively agreed to accept all BC field STEMI's as well as all walk-in STEMI's to BGH ED regardless of the current bed status at KH.

Upon initial EMS contact a cell phone photo transmission of the 12 lead EKGs is sent via a secure email group to the rural ED Medical Control Physician (MCP) at BGH and the on-call intervention cardiologist at KH confirming the diagnosis of STEMI. The MCP at BGH notifies the KH transfer center of the STEMI patient with name and date of birth for pre-registration. The MCP is connected with the interventional cardiologist and relays important clinical information. This notification results in early activation of the PCI team, and direct transport from the field to PCI facility proceeds with direct communication between the

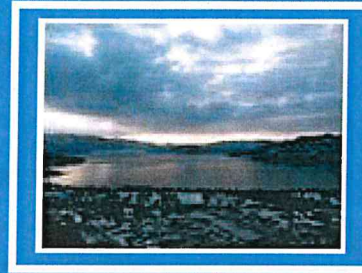
For walk-in patients to BGH, the ED has implemented a STEMI tool kit that utilizes the same STEMI Alert plan and county 911 dispatch. This has resulted in much shorter ED door-to-door times (20 minute goal) for the transfer of STEMI patients from the rural ED direct to PCI cath. Upon initial STEMI recognition the ED physician activates the 911 system utilizing 911 crews for transport. A cell phone photo transmission of the 12 lead EKG is sent to the STEMI email group. The initial ED care to is limited to essential

diagnostics, IV access, monitoring, aspirin and sublingual or topical nitrates. Notification of the KH transfer center results in physician-to-physician contact with the on-call cardiologist and early activation of the PCI team.

The change in the EMS to balloon times (E2B), length of stay and mortality in 35 patients treated prior to this program, was compared to the first 15 persons managed with this program. Between 1/09 and 11/10, 35 STEMI patients were transported to KH from BC. For those requiring immediate cath (typically for failed thrombolysis) the average E2B was 198 minutes including an average time of 88 minutes at BGH before transport could be mobilized. Average length of stay for STEMI patients was 4.5 days. There was one in-hospital and one 30-day mortality. In contrast, under the new STEMI Alert plan the E2B dropped to 109 minutes, which includes a 20-minute scene time. Transport times were similar (44 vs. 47 minutes) as were D2B times once arriving at KH (24 vs. 29 minutes). Length of stay decreased to 2.8 days with no mortality to date.

Since this program was implemented, Lifeflight Networks has added a base in Sandpoint (2012), which allows for additional time sensitive rotary wing transport options from areas of the county where direct ground transport would be significantly slower than a field air transport.

Our experience in Bonner County has shown that direct field EMS to Primary PCI for STEMI is a safe, viable option when using early 12 lead EKG transmission, early activation of the PCI team, and pre-hospital care guidelines used by paramedics in communication with a medical control physician and cardiologist.



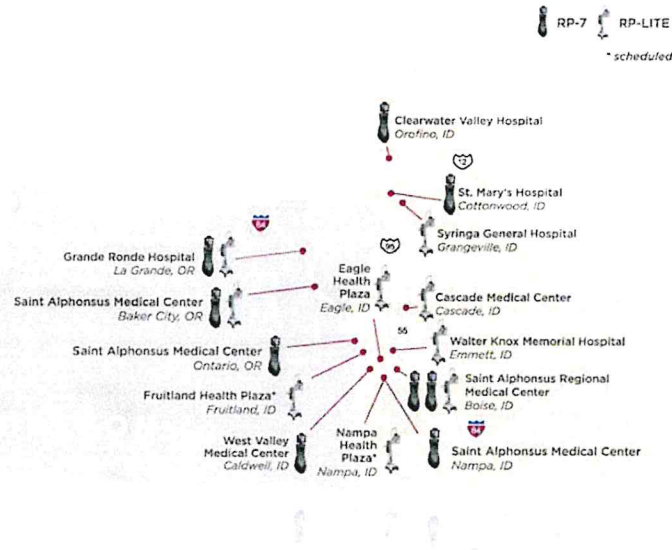
## STEMI ALERT

Bonner General Health is a critical access hospital located in Sandpoint, Idaho and staffed by ABEM physicians. It is linked with Kootenai Health in Coeur d'Alene for interventional cardiology and is a member of the Providence Spokane Tele-Stroke Network.



# Tele-Medicine Networks

 Saint Alphonus | IDA/ORE NETWORK



## RURAL TELE-MEDICINE NETWORKS SAINT ALPHONSUS BOISE, IDAHO

Eastern Oregon and southwest Idaho are sparsely populated with the largest city being Boise, Idaho. In the 350-mile area around Boise, there are 2 regional referral centers, 6 community hospitals and critical access hospitals. Much of the population lives in rural underserved areas where primary care physicians and specialists are scarce.

The Saint Alphonus tele-medicine program was developed to address these regional disparities and increase access to specialty care. The program started with the standard hub and spoke concept then developed into a network of collaborating facilities. The evolution of the network eventually allowed the expansion of services beyond the initial network providers to services from providers at multiple

locations.

Initial services included psychiatry and operating room education for rural nurses. These services have expanded to include cardiology, oncology, burns, stroke, and others. Tele-stroke allows for real time audio-video interaction with stroke specialists for time sensitive emergency management. The technology is also used for physician, nursing and patient education and support services. The use of tele-medicine for rural and community hospitals allows distant specialists to determine which patients may benefit from certain specialized procedures, medications, or in-person consultation. The use of these telemedicine services allows for the expansion of capabilities and admissions by the rural and community hospitals.

InTouch Health Inc. developed a Remote Presence (RP) technology in use at Saint Alphonsus and partnering hospitals. The system is comprised of a RP end-point (robots or cart system), Control Station, and RP Connectivity Service. The Remote Presence technology is a web-based, wireless platform that can be accessed wherever Internet service is available.

Many rural physicians are more comfortable managing patients in their local community when they have immediate access to specialists and tele-medicine. Rural hospitals may also be more successful in recruiting providers when they have access to specialists and tele-medicine.

The potential for financial savings for the patients is significant. In rural Idaho, many transfers occur via air medical transport, which has significant costs. When patients are able to remain in their local community through the use of tele-medicine support, they are able to stay with their family support system. Rural hospitals benefit through increased inpatient volume that can improve both the capabilities and financial viability of these facilities. In cases where transport is necessary, involving a specialist earlier in the patient's care can lead to improved outcomes while providing support to local physicians. For example, stroke patients can be evaluated by neurologists who can support treatment decisions in real-time.

During the first five years of operation the Saint Alphonsus, Boise based tele-medicine program has provided improved access to specialty services which has allowed more patients to be treated in their local communities.

## TELEMEDICINE NETWORKS



### St Alphonsus Health System

The Saint Alphonsus Health System is Boise, Idaho based, and is anchored by a hospital that is certified as a Level II Trauma Center, Chest Pain Center, and Primary Stroke Center.



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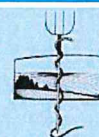
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