

Request for Decision

Standardization of Paramedic Services Cardiac Monitor Defibrillator

Presented To: Community Services Committee

Presented: Monday, May 04, 2015

Report Date Tuesday, Apr 21, 2015

Type: Managers' Reports

Recommendation

THAT the City of Greater Sudbury authorizes the Paramedic Services Division to continue to maintain a standardized Cardiac Monitor-Defibrillator through purchases with Zoll Medical Canada Inc., Mississauga, ON., including consumables for the next five years; consisting of one three-year term, and two one-year optional extensions.

Finance Implications

Expenditures are funded within existing budgets.

Health Impact Assessment

The standardization of cardiac monitor defibrillators in accordance with this report has the ability to improve patient outcomes as a direct result of the clinical technologies described in this report, while also reducing repetitive strain type injuries for our Paramedics due to the improved portability (decreased size/reduced weight).

Background

EXECUTIVE SUMMARY

The Paramedic Services Division seeks Council authorization to continue with a standardized inventory of cardiac monitor defibrillators through purchases with Zoll Medical Canada Inc. over the next five (5) years. The Zoll Cardiac Monitor defibrillator is a mission critical diagnostic and therapeutic device used by Paramedics to diagnose, treat, and monitor patients suffering from various medical conditions.

Standardized equipment is important to the overall effectiveness and efficiency of the operation with benefits that include: ensures consistent application of established training requirements; standard defibrillator mounting solutions on the Stryker Power Cot stretcher; continued compatibility with existing automated defibrillators in use by the Fire Services Division; and, the City's Public Access Defibrillator (PAD) program.

Signed By

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Health Impact Review

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Division Review

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BACKGROUND

The Paramedic Services Division has maintained standardized inventory of Zoll monitor-defibrillators for the past 15 years and has recently been migrating to their newest generation X-Series platform. It is important to maintain a single vendor for the purchase of cardiac monitor-defibrillator units due to the significant infrastructure required to support the product and the in-depth training of Paramedics on their operation. There are three monitor defibrillator manufacturers in North America with units specifically designed for the Paramedic environment, they are Zoll Medical, Physio Control, and Phillips Healthcare. Zoll Medical is a leader in defibrillator design, manufacture and distribution and one of the largest manufacturers of cardiac monitor defibrillators in North America.

Cardiac monitor-defibrillators are highly technical medical devices that can assess the electrical activity within cardiac muscle. They can determine the type and strength of cardiac electrical waveform and conduction, and display it to the Paramedic for analysis and treatment. In cases when a patient is suffering a cardiac arrest resulting in a heart rhythm which is irregular and unable to support effective circulation of oxygen throughout the body the defibrillator can then be used to deliver either automatic or manual electrical shocks to therapeutically correct the abnormal electrical rhythm and restore proper circulation.

The Zoll cardiac monitor-defibrillators used by Sudbury Paramedics include many advanced features: 12-lead ECG analysis, automatic or manual defibrillation; cardiac pacing (assisting a heart which is beating abnormally slow); non-invasive blood pressure monitoring; blood oxygen saturation monitoring; end-tidal carbon dioxide monitoring; and carbon monoxide blood saturation monitoring.

The Service has a significant infrastructure in place to support the Zoll product line including, Wi-Fi hot spot networks in our vehicles and HSN Emergency Department to expedite transmission of the monitor-defibrillator information to the patients electronic ambulance chart or directly to the hospital emergency department or intensive care areas. In addition, the service maintains a large inventory of Zoll batteries, battery chargers, and defibrillator pads, as well as certified secure mounting solutions on our ambulance power cots for the Zoll monitor-defibrillator.

There are a number of consumable supplies and operating accessories which must be used in conjunction with cardiac monitor-defibrillators. These include defibrillator pads; ECG recording paper; internal data cards; ECG patient cables; batteries; oxygen and carbon monoxide sensor cables (adult and pediatric); neonatal sensors; blood pressure cuffs; and carbon dioxide sensors and cables, batteries and battery chargers. All of the 'hard' reusable supplies and accessories are proprietary to Zoll Medical Canada Inc. and must be purchased from Zoll Medical Canada Inc. for both compatibility and warranty purposes.

Some additional key features unique to the Zoll X Series monitor-defibrillator are:

ST Elevation Myocardial Infarction (STEMI) – The Zoll X Series utilizes 12-lead interpretive algorithm software that has a positive predictive value (PPV) of 98%. This accuracy is imperative in evaluating 12-lead ECG's used by Paramedics to identify patients requiring coronary catheterization interventions to reduce mortality and morbidity in patients who are positive for STEMI.

Size and weight – Paramedics are required to bring a defibrillator into every call, along with other medical kits and stretcher weight is always a concern. The Zoll X Series small size (half the size of other competitors in the industry) and weighing in at 6 kilograms places this unit in a class of its own. Despite the small overall size the X Series maintains a full colour display monitor as large as its competitors.

Durability – Originally developed to survive the extreme conditions of the battlefield, the Zoll X Series holds an industry-best "ingress protection" (IP55) rating. Certifying it is well protected from the potential hazards like water, dust, and body fluids the equipment is exposed to daily in the field.

CPR Assistance – Real CPR Help™ is a proprietary ZOLL technology which allows Paramedics to

visualize and receive real-time feedback on their CPR performance, including compression depth, rate, and perfusion. Real-time audiovisual feedback is independently associated with an increased likelihood of both survival to hospital discharge and favorable functional neurological outcome, along with achievement of the AHA guideline recommended metrics for CPR quality “Clinical Summary” 2014.

ZOLL’s technology is the only integrated CPR feedback solution available on the market. These include:

1. Interruption Timer,
2. CPR Timer,
3. Full Release Display,
4. Perfusion Indicator,
5. Prompts on chest compression depth.

Benefits of Standardized Monitor Defibrillators

The following are the key advantages and benefits of monitor-defibrillator standardization:

- Simplified training required for Paramedics as they only need to learn about one type of operating technology; ensuring consistency, therefore reducing user error.
- Standard “certified” monitor-defibrillator stretcher mounting solution, improving Paramedic and patient safety.
- Greater control of inventory logistical operations in terms of managing standard practices for deploying equipment, pre-shift operational checks, restocking, cleaning and disinfection practices.
- Standard monitor-defibrillator compartment layout allowing accessory equipment to be located in a standardized manner across the entire inventory. This allows Paramedics to easily locate emergency supplies and equipment when treating a patient under stressful conditions.
- Allows the City and vendor to better manage warranties, technical support, software integration and usable supplies across the entire inventory.
- Standardized preventative maintenance program.
- Eliminate a need for different vendor parts to maintain defibrillators (batteries and chargers), and saves on storage space for these parts.
- Technicians have received specific training on Zoll defibrillators; this improves maintenance quality while decreasing down time. One set of special tools, manuals, schematics used for diagnostics as well as adjustments and repairs. Faster and more efficient repairs due to technician knowledge, understanding, training, and experience with a single defibrillator technology.
- Ability to interchange parts between units to maintain serviceability.
- Compatibility of defibrillator pads with those currently used by Fire Services and the City’s Public Access Defibrillator Program.
- Single style battery and battery charger technology used at all Stations.

After Sales Service

The Paramedic Services Division's experience with Zoll has been very positive, progressive and productive. We have been using Zoll products for the past 15 years and Zoll has consistently demonstrated strong after sales service through timely commitment to problem resolution and solid technical support.

Recommendation

The City of Greater Sudbury Paramedic Services Division requests we continue with a standard monitor-defibrillator inventory for the next five (5) years. During this period the service will continue to monitor the market, ensuring we are maintaining value for money with our purchases. In the event there is a special requirement for a non-standard defibrillator or where provincial certification standards change or emerging technological advancements present themselves, a public procurement document may be issued.

