



Non-hospital Medical and Surgical
Facilities Accreditation Program

ACCREDITATION STANDARDS

Medical Gas – Pipeline
System

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Introduction

The Canadian Standards Association (CSA) Medical gas pipeline systems - Part 1: Pipelines for medical gases, medical vacuum, medical support gases and anaesthetic gas scavenging systems (CAN/CSA Z7396.1) specifies the safety requirements for medical gas pipeline systems. It applies to all facilities providing health-care services, both public and private, regardless of type, size, location or range of services. As-built drawings of the medical gas pipeline system should be retained by the facility.

Medical gas - pipeline system

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.0	MEDICAL GAS - PIPELINE SYSTEM				
MEDGP1.1	Medical gases are safely and effectively managed.				
MEDGP1.1.1	<p>M Medical gas pipeline systems are supplied from at least two sources: a primary source and a secondary (reserve) source.</p> <p>Guidance: Portable cylinder supply systems consist of a primary supply of cylinders and a secondary (reserve) supply of cylinders. Liquid supply systems consist of a primary liquid vessel source of supply and a secondary source that uses either a liquid vessel or high-pressure cylinders. Both the primary and secondary sources are connected to the pipeline manifold.</p>		H		P, F
MEDGP1.1.2	<p>M Each medical gas supply cylinder is clearly labeled with the cylinder’s contents.</p>		H		P, F
MEDGP1.1.3	<p>M Each medical gas supply cylinder is clearly marked as full, in use or empty.</p>		M		P, F
MEDGP1.1.4	<p>M Cylinders not in use or empty are shut off and capped.</p>		M		P, F
MEDGP1.1.5	<p>M A method for shutting off cylinders is readily available in each place where cylinders are in use or stored.</p> <p>Guidance: Medical gases intended for use with a pipeline manifold system usually have a hand-wheel attached to open and shut off the cylinder. Other cylinders such as smaller emergency oxygen tanks need a cylinder wrench to turn the tank valve on and off.</p>		H		P, F
MEDGP1.2	The medical gas supply is safely stored and secured.				

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.2.1	<p>M All cylinders are secured to prevent falling during storage, transportation and use.</p> <p>Guidance: Cylinders either connected to the supply system or stored at the facility are secured in carts, vertical stands or with safety straps/chains. Cylinders are to be kept in the upright position, whenever practicable.</p>		H		P, F
MEDGP1.2.2	<p>M Medical gas supply is located in a locked room or enclosure accessible only to authorized personnel.</p> <p>Guidance: Facilities with a medical gas pipeline system are required to have a dedicated medical gas supply room or enclosure. Facilities that use only free-standing tanks are not required to have a dedicated medical gas supply room.</p>		H		P, F
MEDGP1.2.3	<p>M Rooms or enclosures for medical gas supply systems are not used for any purpose other than for the placement and storage of medical gas cylinders.</p>		H		P, F
MEDGP1.2.4	<p>M A “no smoking” sign is posted immediately outside each medical gas supply system room or enclosure.</p>		M		P, F
MEDGP1.2.5	<p>M The exit from the medical gas supply system room or enclosure is unobstructed.</p>		H		P, F
MEDGP1.2.6	<p>M The exit door from the medical gas supply system room or enclosure opens outward.</p>		M		P, F
MEDGP1.2.7	<p>M The temperature in the medical gas supply room or enclosure is monitored.</p> <p>Guidance: The temperature is not to exceed 40°C for any gas and is never below 15°C for nitrous oxide and carbon dioxide. Temperature is recorded in a log each surgical/procedural day.</p>		M		P, F

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.3	The medical gas system is safely operated and monitored.				
MEDGP1.3.1	<p>M Medical gas supply levels are verified before the first case of the day.</p> <p>Guidance: The first procedure of the day does not start until sufficient medical gas supply is confirmed. There should also be an adequate emergency supply of oxygen.</p>		H		P, F
MEDGP1.3.2	<p>M Alarm panel(s) is located in an area occupied by clinical staff.</p> <p>Guidance: Alarms panel(s) is located in an area that allows for continuous surveillance and is near the operating/procedure room.</p>		M		P, F
MEDGP1.3.3	<p>M Alarm panel(s) is unobstructed.</p>		M		P, F
MEDGP1.3.4	<p>M Alarm panel(s) clearly indicates the gas, zone and condition being monitored.</p>		M		P, F
MEDGP1.3.5	<p>M Zone valves are unobstructed and located near the operating/procedure room(s).</p> <p>Guidance: A zone valve is a shut-off valve in the pipeline system that allows personnel to isolate a zone with the facility in the event of an emergency or for maintenance. In general anesthesia facilities, a zone valve is required for each operating/procedure room.</p>		H		P, F
MEDGP1.3.6	<p>M Zone valves are securely enclosed.</p> <p>Guidance: The cover or door of the zone valve box is closed but allows for quick access in case of emergency.</p>		H		P, F
MEDGP1.3.7	<p>M Pipeline pressure is observed and recorded at least once each surgical/procedural day.</p>		L		P, F

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.3.8	M Personnel are knowledgeable regarding the location of the main and zone shut-off valves and procedures for shutting off the medical gas system.		H		P, F
MEDGP1.3.9	M Personnel are knowledgeable regarding the procedures for changing the supply cylinders. Guidance: While the medical gas supply technician may be the primary person responsible for the regular changing of the medical gas supply tanks, in case of emergency there must be a least one person on site each surgical/procedural day who is competent in the changing of the medical gas supply tanks. Personnel education and training (in-servicing) on medical gas supply system operation, monitoring and safety is on file.		H		P, F
MEDGP1.3.10	M Procedures for changing the medical gas supply cylinders are posted in the medical gas supply room or enclosure.		M		P, F
MEDGP1.4	The medical gas pipeline system is maintained in accordance with current CSA standards.				
MEDGP1.4.1	M The medical gas pipeline system is checked by a qualified service technician every six months. Guidance: The Canadian Standards Association defines a qualified service technician as a person who through professional training and education is qualified to service a medical gas system. Medical gas pipeline systems shall be maintained in accordance with current Canadian Standards Association standards. Records of maintenance, ongoing verification and repairs are on file and are maintained for the life of the system.		M		P, F

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.4.2	<p>M The maintenance and ongoing verification program includes the medical gas system.</p> <p>Guidance: Every six months the maintenance and ongoing verification check includes the supply system (primary and secondary source transfer, pressure regulators, pigtails, manifold valves, gauges, displays, indicator lights, pressure relief valves, leakage tests) and the alarm panels. Once a year the check also includes terminal units and zone valves. Records of maintenance, ongoing verification and repairs are on file and are maintained for the life of the system.</p>		M		P, F
MEDGP1.4.3	<p>M The maintenance and ongoing verification program includes the medical vacuum system.</p> <p>Guidance: The medical vacuum system is inspected annually in accordance with CSA Z7396.1 Medical gas pipeline systems - Part 1: Pipelines for medical gases, medical vacuum, medical support gases, and anaesthetic gas scavenging systems, Clause 15, Maintenance and ongoing verification. Records of maintenance, ongoing verification and repairs are on file and are maintained for the life of the system.</p>		M		P, F
MEDGP1.4.4	<p>M The maintenance and ongoing verification program includes the anesthetic gas scavenging system.</p> <p>Guidance: The AGSS is inspected annually in accordance with CSA Z7396.1 Medical gas pipeline systems - Part 1: Pipelines for medical gases, medical vacuum, medical support gases, and anaesthetic gas scavenging systems, Clause 15, Maintenance and ongoing verification. Records of maintenance, ongoing verification and repairs are on file and are maintained for the life of the system.</p>		M		P, F

No.	Description	Reference	Risk	Change	Asmt.
MEDGP1.4.5	<p>M Pressure relief valves are replace every at minimum five years.</p> <p>Guidance: Records of maintenance, ongoing verification and repairs confirm that pressure relief valves have been replaced, at minimum, within the last five years.</p>		M		F
MEDGP1.4.6	<p>M Any defective components or system deficiencies are immediately corrected.</p> <p>Guidance: Repairs or system remediation is to be performed immediately upon observation by a qualified service technician. If the repair or remediation cannot be performed immediately then the component is flagged with the date, the problem, "do not use" or limitations on use and the name of the qualified technician. This flag is removed on resolution of the defect.</p>		H		P, F
MEDGP1.5	<p>Policies and procedures contain all the information necessary for the safety of patients, staff and visitors.</p> <p>Guidance: Policies and procedures ensure that activities/procedures are performed consistently and accurately by all personnel within the non-hospital facility.</p>				
MEDGP1.5.1	<p>M There is policy and procedures for the medical gas pipeline system.</p> <p>Guidance: Medical gas pipeline policy and procedures include the safe use, handling and storage of medical gases, medical gas supply replenishment, how to change the supply tanks, daily checks including how to verify supply levels, and the maintenance and ongoing verification program.</p>		M		P, F

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Revision history

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