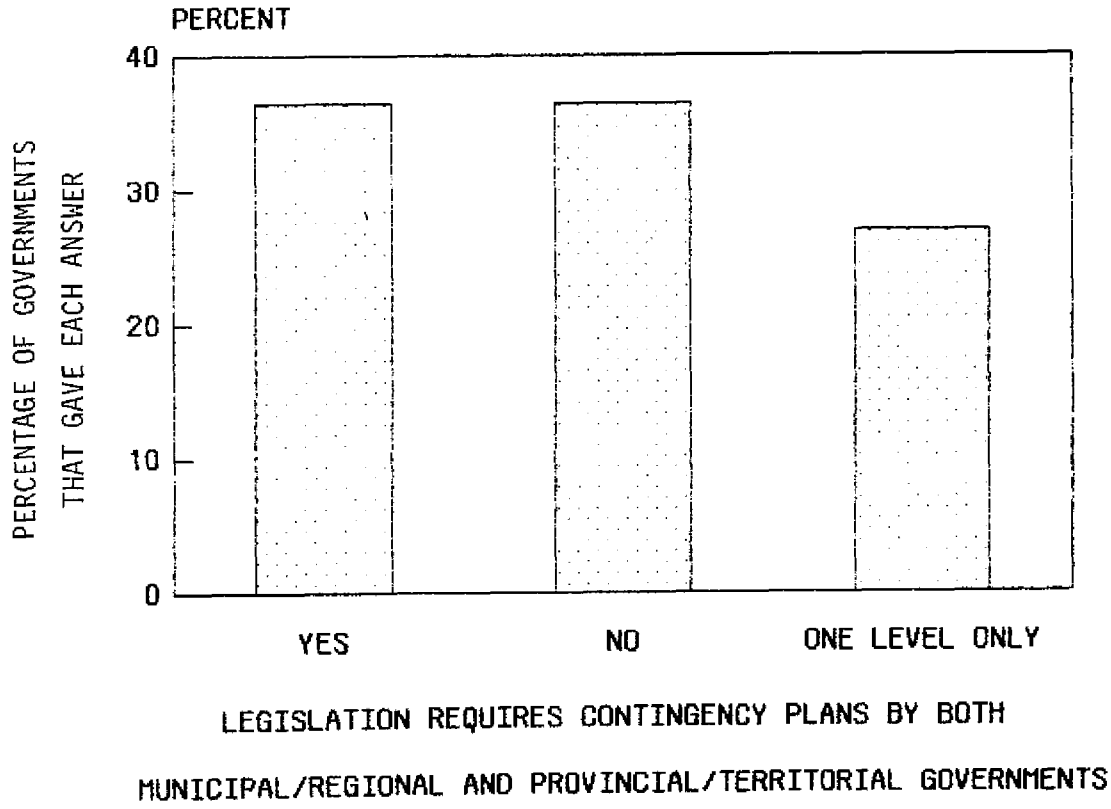
Question 3:

There is some uncertainty that comprehensive legislation exists in all areas of the country. For your specific area(s) is there provincial/territorial legislation which requires contingency plans for governments at both the municipal/regional and provincial/territorial levels?

(a) Yes
(b) No
(c) At one level only

Response 3: (Eleven provincial/territorial governments answered this question)



Analysis 3:

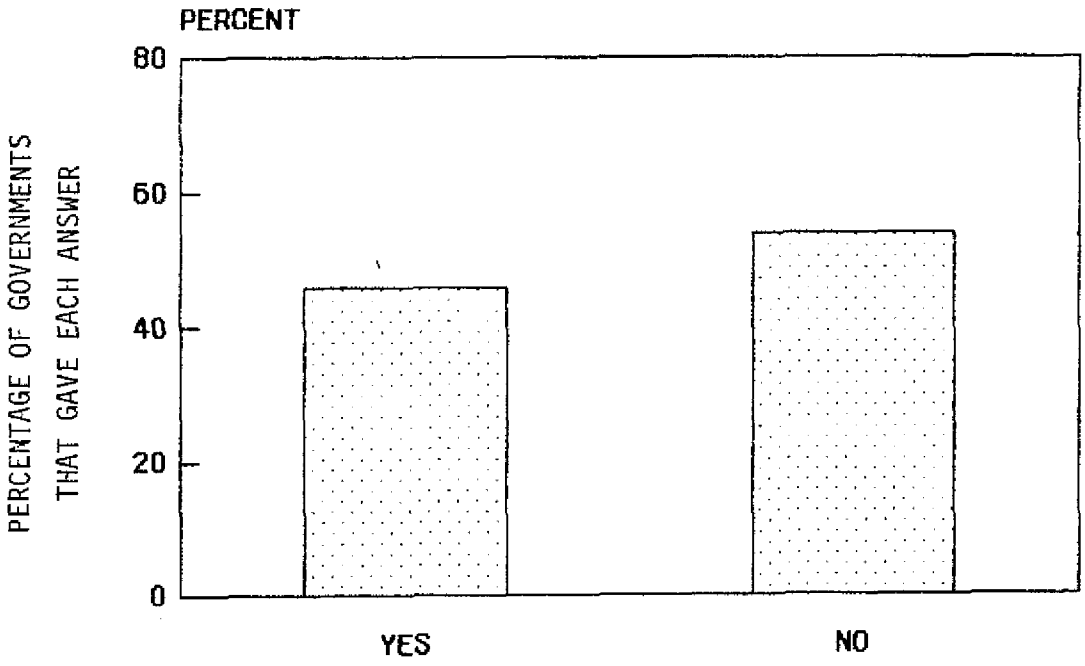
There appears to be no common approach by responding governments as to the contingency planning requirements by means of legislation.

Question 4:

Aside from the dangerous goods legislation for handlers, offerers and transporters of dangerous goods, is there any other provincial/territorial legislation which requires companies/industries dealing with hazardous chemicals (e.g., manufacturers, intermediate processors, major customers) to have contingency plans for emergency response?

(a) Yes
(b) No

Response 4: (Eleven provincial/territorial governments answered this question)



LEGISLATION REQUIRING CONTINGENCY PLANS OTHER THAN DANGEROUS GOODS LEGISLATION

Analysis 4:

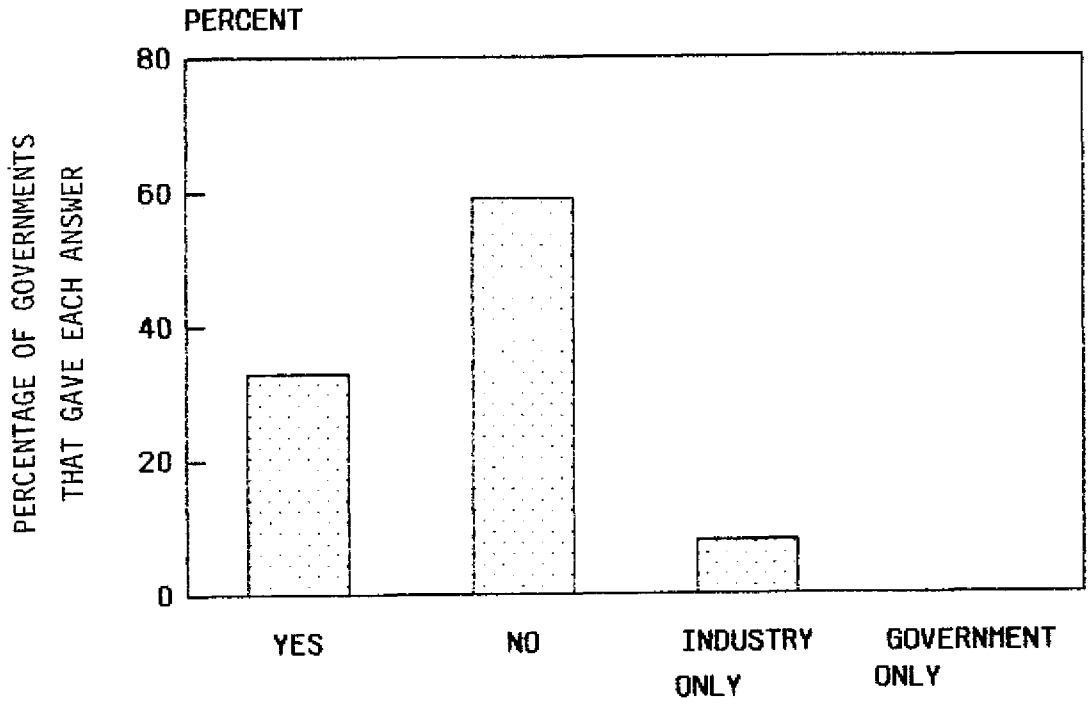
This result suggests that chemical accident hazards other than those covered by Transportation of Dangerous Goods legislation are not well-identified.

Question 5:

Is there a legislated requirement for the contingency plans in questions (3) and (4) to be exercised and updated on a periodic basis?

(a) Yes
(b) No
(c) Companies/industries only
(d) Municipalities/regions only

Response 5: (Twelve provincial/territorial governments answered this question)



LEGISLATIVE REQUIREMENT FOR PERIODIC TESTS AND UPDATES OF CONTINGENCY PLANS

Analysis 5:

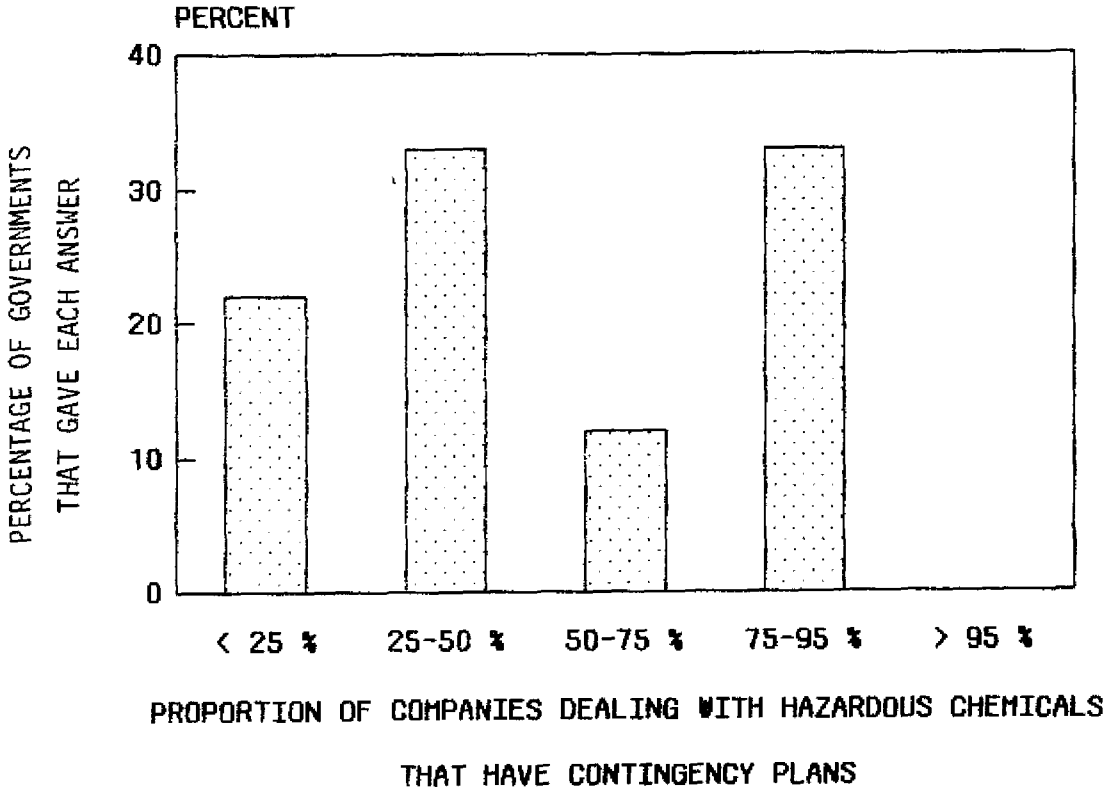
Most governments have not formalized the need for updating and exercising of contingency plans in their legislation. Many legislators may have considered that such activities occur automatically in plan development by professionals. There is a correlation between those governments which require plans at both provincial and municipal levels, and the ones which specify requirements for periodic updates and exercises.

Question 6:

Regardless of the legislative requirements above, what proportion of the companies/industries which deal with hazardous chemicals (including manufacturers, shippers, transporters, handlers and major users) now have in place spill/release contingency plans which will be or are periodically exercised and updated?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 6: (Nine provincial/territorial governments answered this question)



Analysis 6:

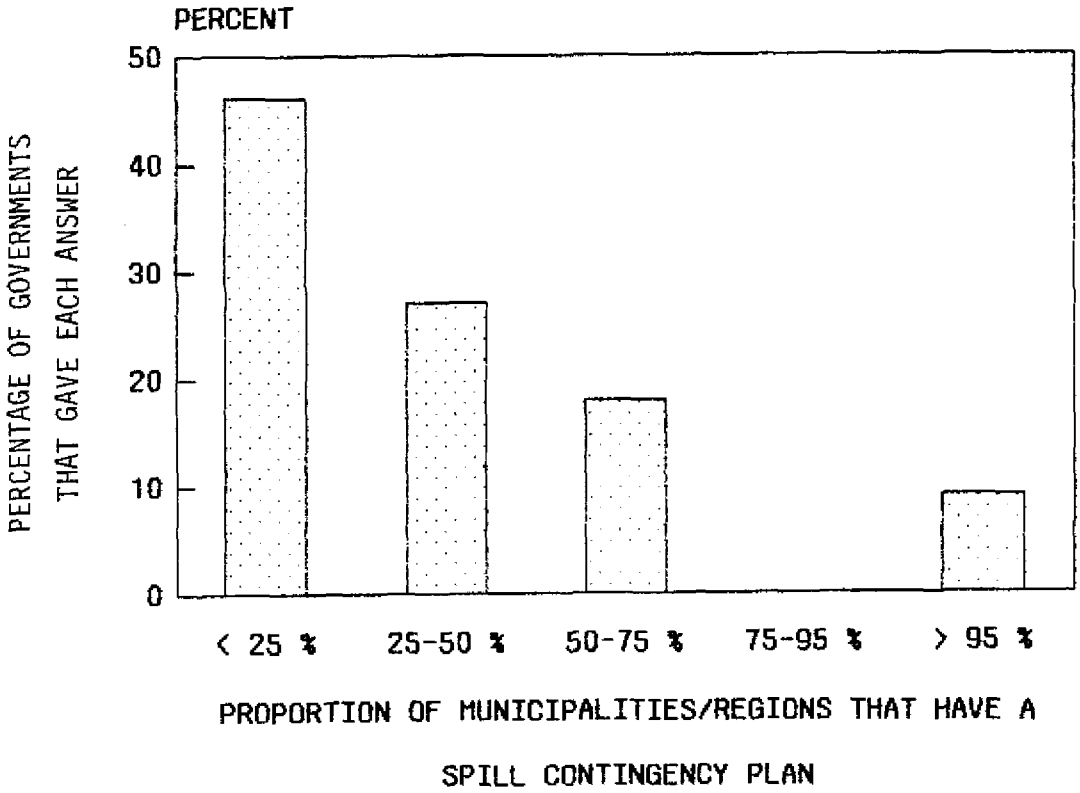
No trends or conclusions could be identified for this fairly uniform distribution of answers. There was little correlation between the identified levels of industrial activity and the proportions of spill contingency plans completed by industrial companies in each jurisdiction. A few provinces indicated that specific data on this question were not available.

Question 7:

As in question 6, what proportion of the municipalities/regions now have in place spill contingency plans which are periodically exercised and updated?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 7: (Eleven provincial/territorial governments answered this question)



Analysis 7:

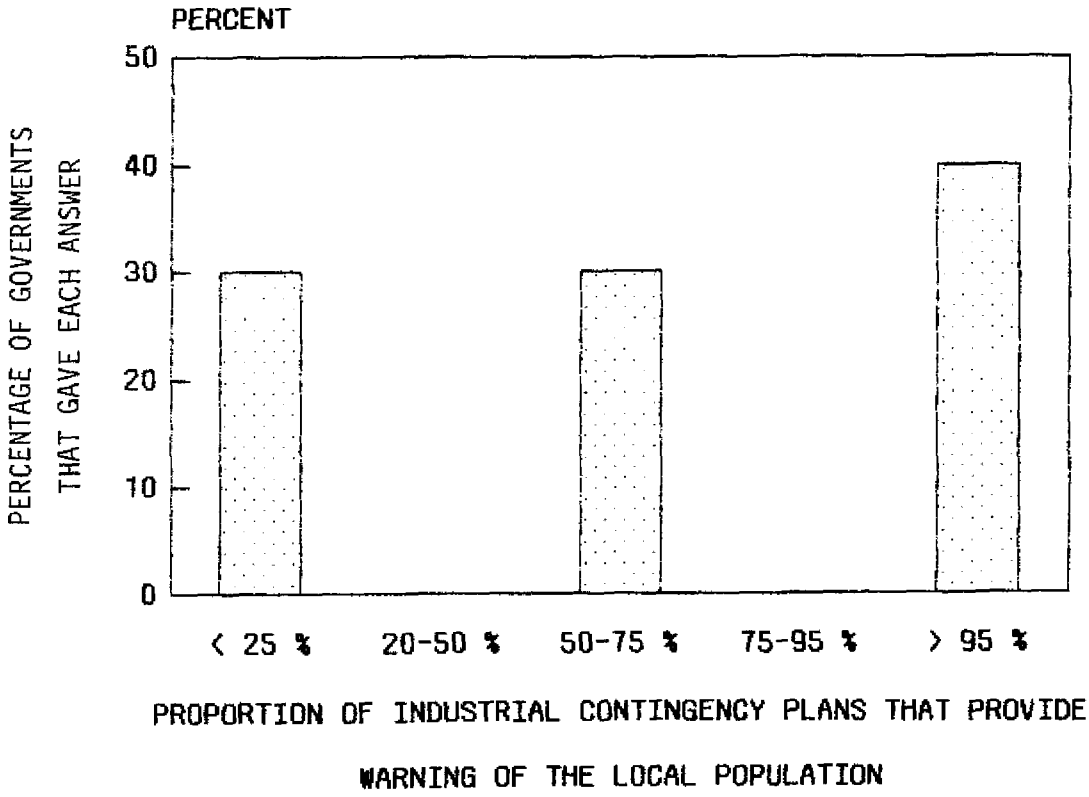
This question did not address the quality of available contingency plans, but inferred that the mere existence of plans which are updated and exercised provides evidence of preparedness. The results suggest that most municipalities are not completely prepared for major chemical spills. There may be some heightened awareness (through recent legislation and incidents) of the risks of dangerous goods transportation, but this has not apparently resulted in many actions to improve municipal plans. There was only partial correlation between the levels of industrial activity and the levels of municipal government preparedness for chemical accidents.

Question 8:

What proportion of the industrial contingency plans which have been prepared provide for direct, early warning to ensure adequate alerting and response procedures at the local level outside the plant boundaries?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 8: (Ten provincial/territorial governments answered this question)



Analysis 8:

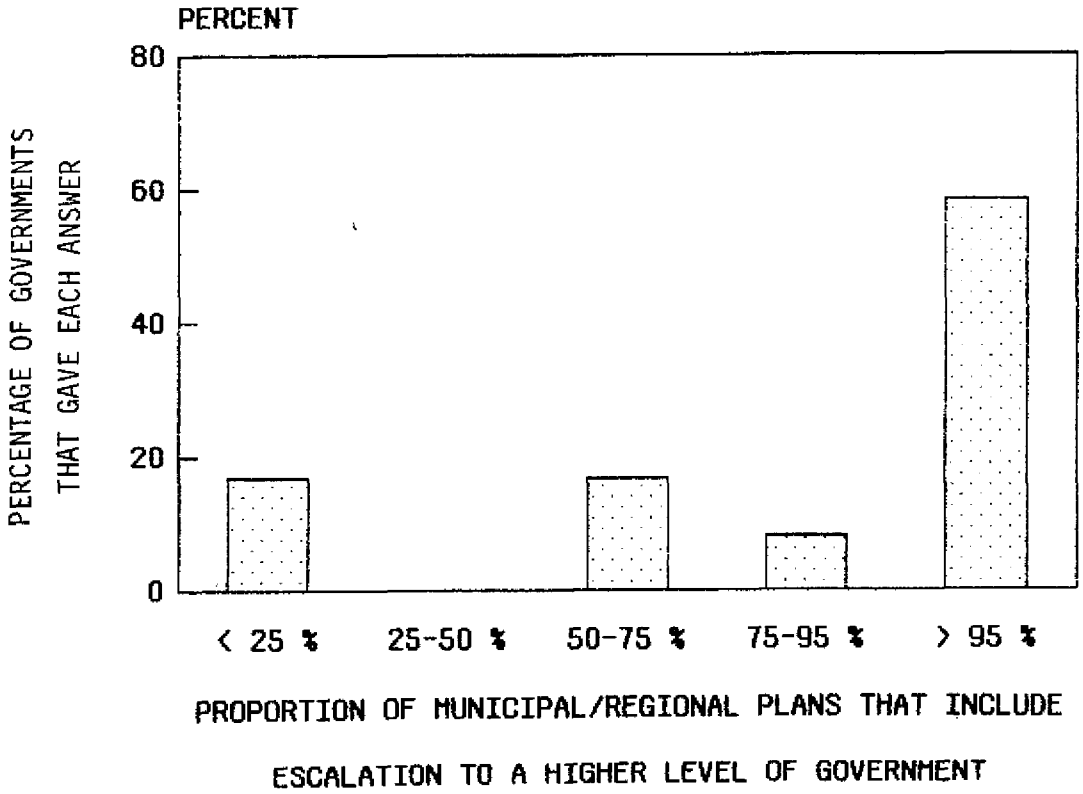
It is difficult to identify a conclusion or trend in these responses. The question might have been improved if it had been linked to the smaller sub-set of plants which have a potential for off-site releases of toxic chemicals. There is, however, a reasonable correlation between those responses which indicated major levels of industrial activity, and those which indicated that plans, where they have been prepared, provide for local warnings.

Question 9:

What proportion of the municipal/regional plans include an escalation process to a higher level of government?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 9: (Twelve provincial/territorial governments answered this question)



Analysis 9:

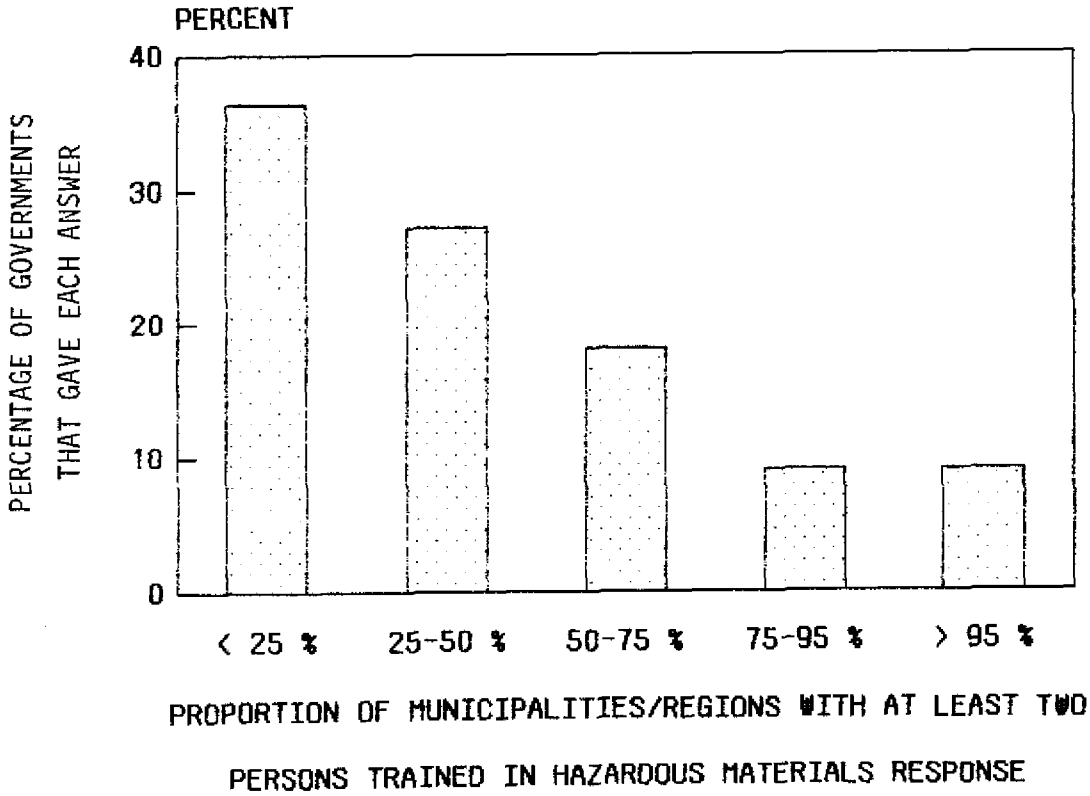
The trend of responses suggests that the escalation mechanisms are largely in place for municipal/regional contingency plans.

Question 10:

At the municipal/regional level, what proportion of municipalities have had at least two people trained in basic hazardous materials response countermeasures?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 10: (Eleven provincial/territorial governments answered this question)



Analysis 10:

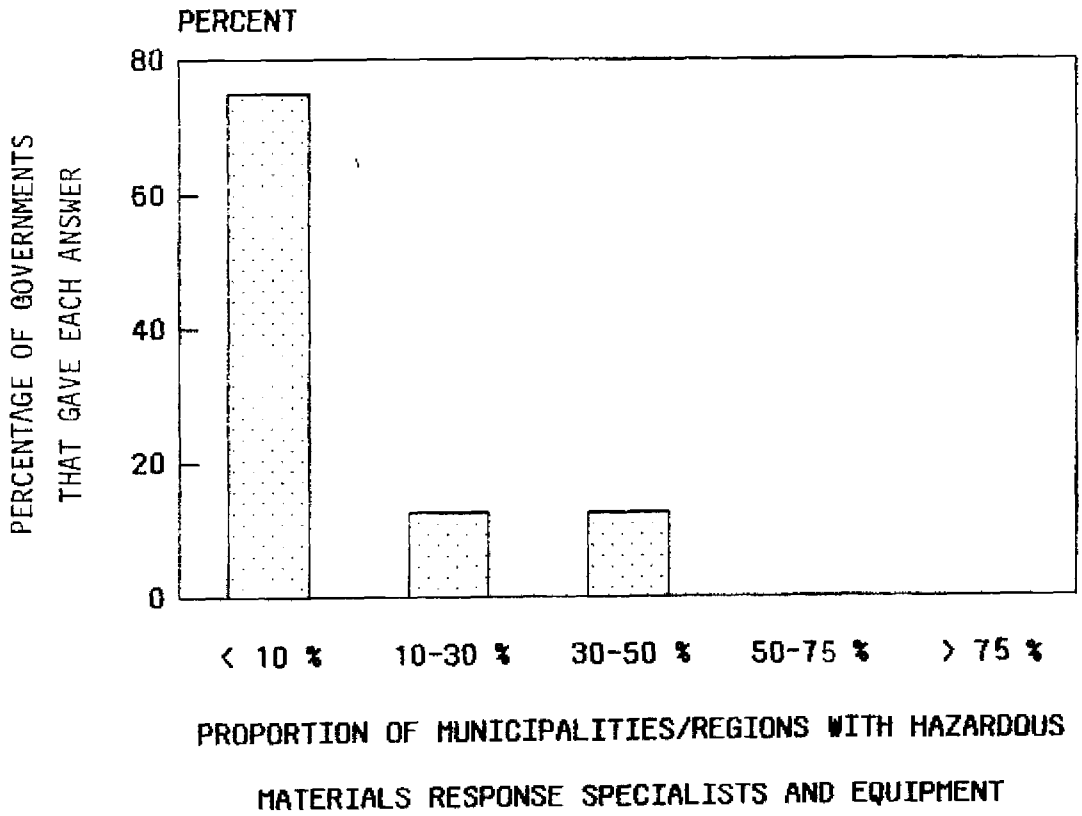
The results suggest that, in general, relatively few people are trained at the municipal/regional level, in basic response countermeasures. A more detailed survey would likely determine that larger, more industrialized municipalities do have some trained personnel, mostly in the fire service.

Question 11:

What proportion of municipalities located in high or medium threat areas have designated haz-mat specialists and have been equipped with hazardous materials response equipment (other than normal turnout gear and SCBA's), such as totally-encapsulated chemical suits, and specialized tools, equipment and instrumentation?

(a) less than 10%
(b) 10% to 30%
(c) 30% to 50%
(d) 50% to 75%
(e) more than 75%

Response 11: (Nine provincial/territorial governments answered this question)



Analysis 11:

The results here are similar to those for the previous question; the trend is even more pronounced because of financial/personnel limitations. A more detailed survey would probably show that only a few larger, more industrialized Canadian cities have specially-equipped teams in their fire service for response to hazardous materials incidents.

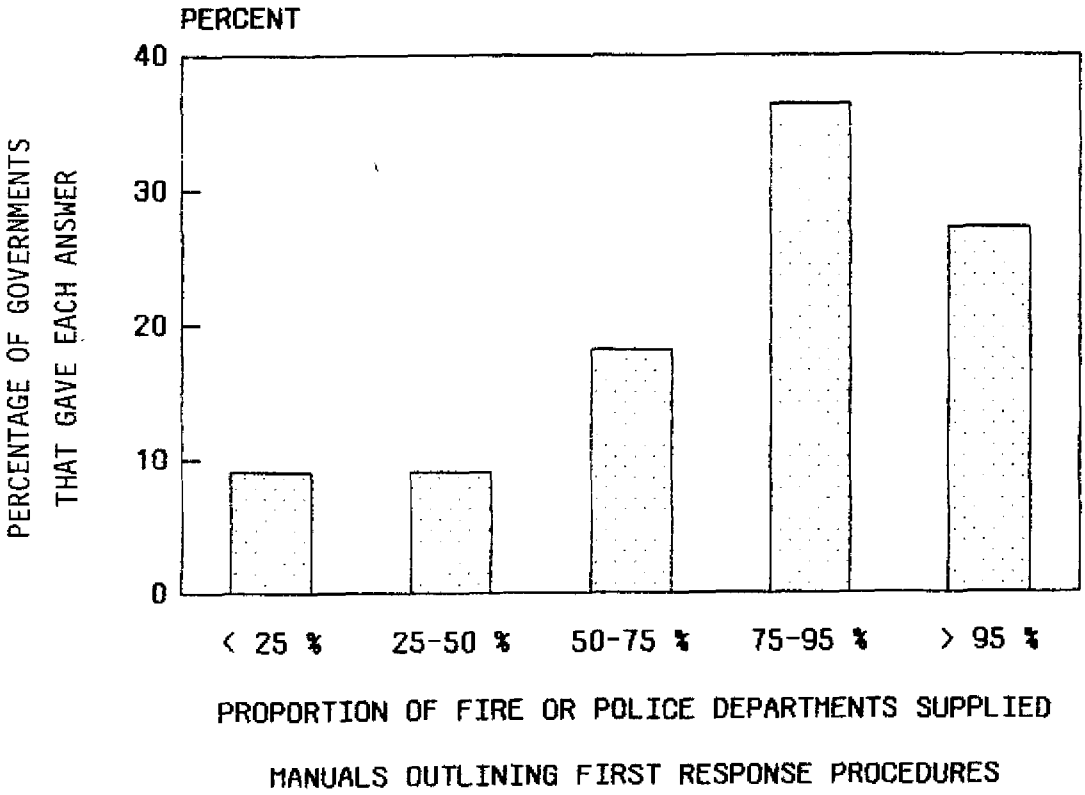
Question 12(i):

At the municipal/regional level, what proportion of the fire or police departments are:

(i) supplied with manuals outlining appropriate first response procedures for major chemical incidents?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(i): (Eleven provincial/territorial governments answered this question)



Analysis 12(i):

Most fire or police departments have access to first responder manuals.

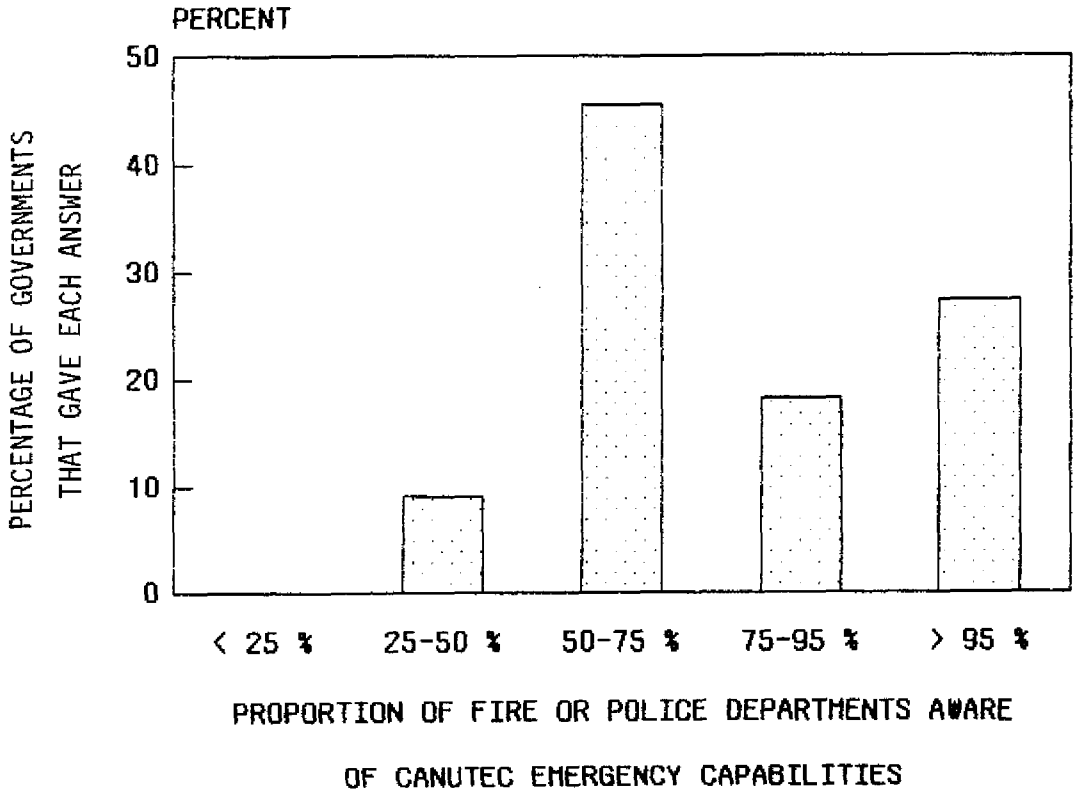
Question 12(ii):

At the municipal/regional level, what proportion of the fire or police departments are:

(ii) aware of the CANUTEC emergency centre's capabilities and telephone numbers?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(ii): (Eleven provincial/territorial governments answered this question)



Analysis 12(ii):

Most fire and police departments appear to be aware of CANUTEC and its capabilities.

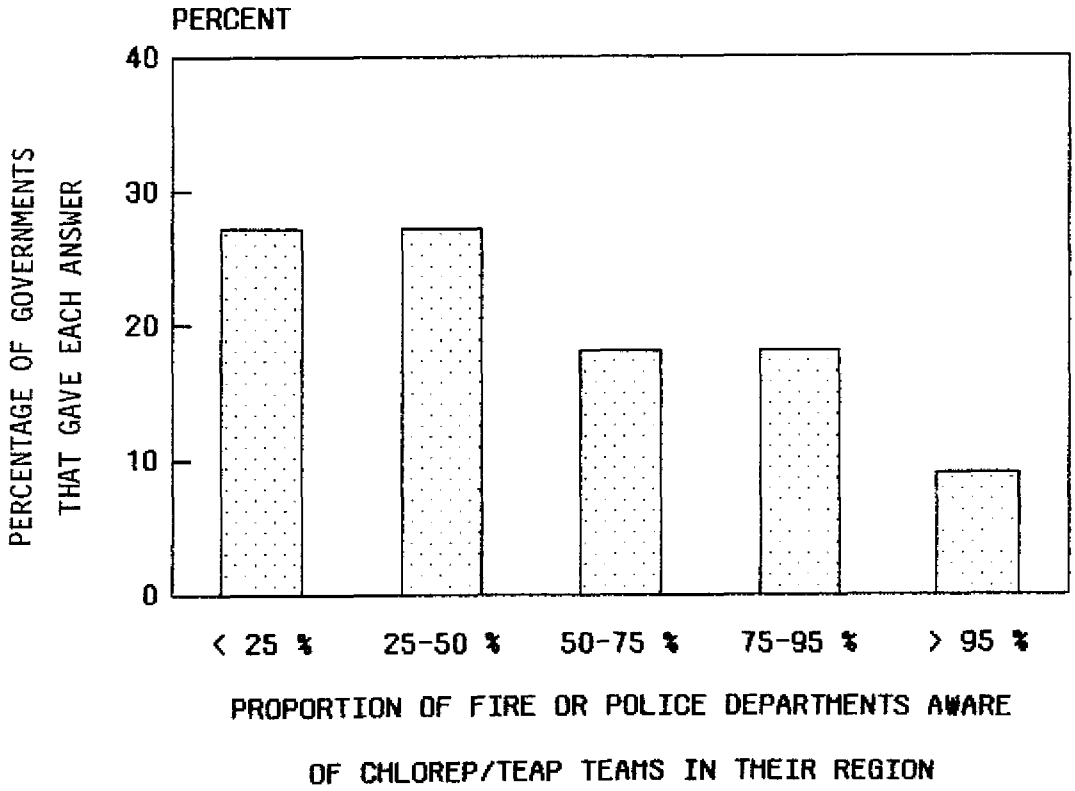
Question 12(iii):

At the municipal/regional level, what proportion of the fire or police departments are:

(iii) aware of industry emergency telephone numbers for response by TEAP/CHLOREP etc., teams in their province/region?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(iii): (Eleven provincial/territorial governments answered this question)



Analysis 12(iii):

Compared to the trends indicated in parts 12(i) and 12(ii), the degree of awareness by fire and police departments of regional spill response arrangements appears to fall off as the level of response shifts from "first on-scene" to the more advanced response by industrial specialists.

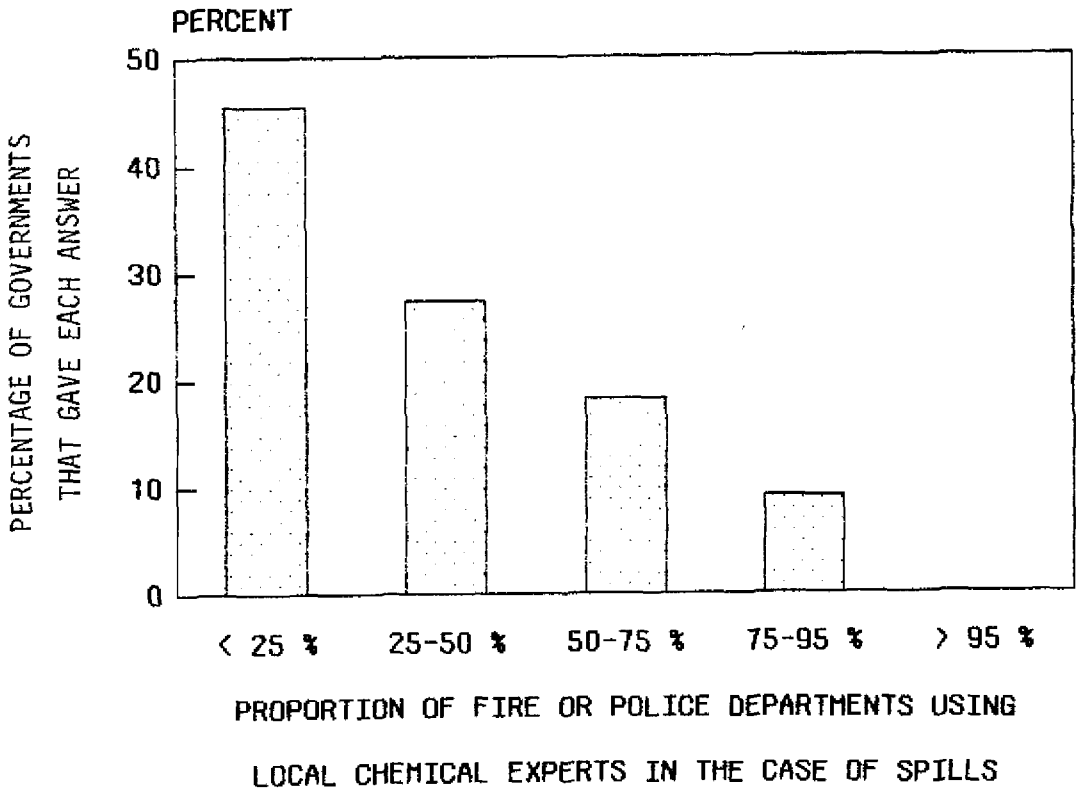
Question 12(iv):

At the municipal/regional level, what proportion of the fire or police departments are:

(iv) aware of and have made arrangements for local/regional chemical experts to advise them during chemical incidents?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(iv): (Eleven provincial/territorial governments answered this question)



Analysis 12(iv):

The fall-off in first-responder awareness with increasing level of response sophistication appears to continue here.

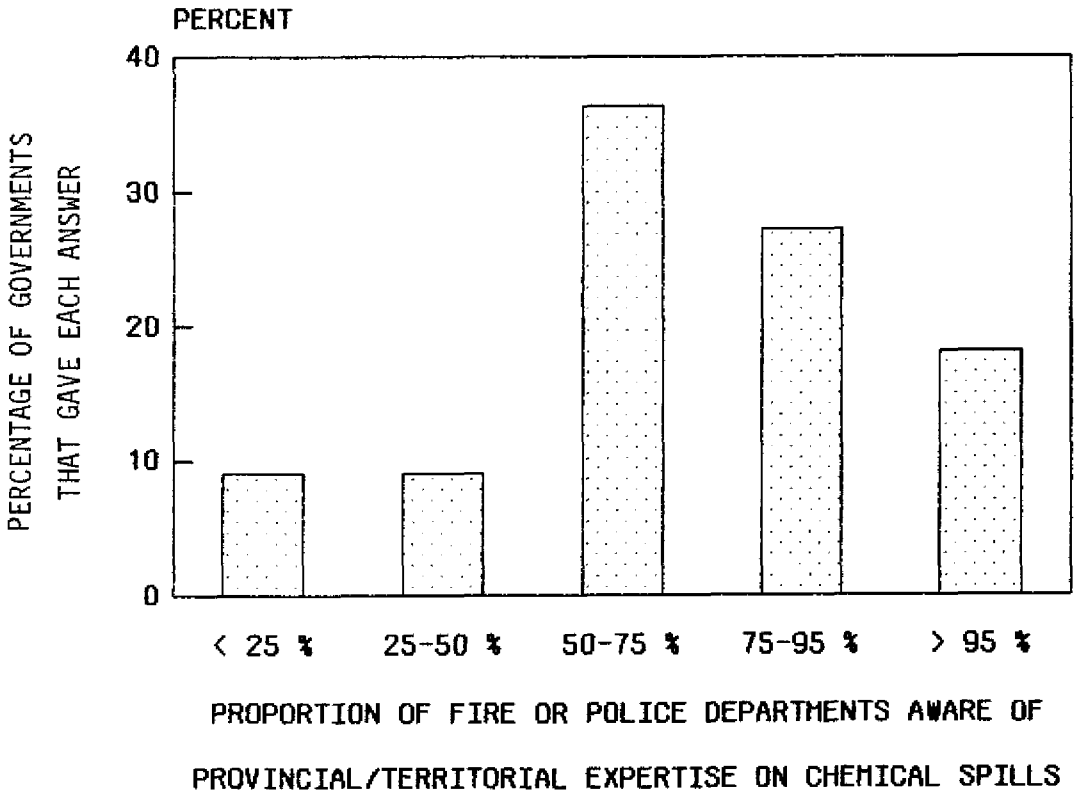
Question 12(v):

At the municipal/regional level, what proportion of the fire or police departments are:

(v) aware of other technical guidance and information sources on chemical emergencies available within their provincial/territorial governments (provincial EMO's, ministries of environment, etc.)?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(v): (Eleven provincial/territorial governments answered this question)



Analysis 12(v):

Most fire and police departments are apparently aware of provincial sources of information and advice on chemical spills.

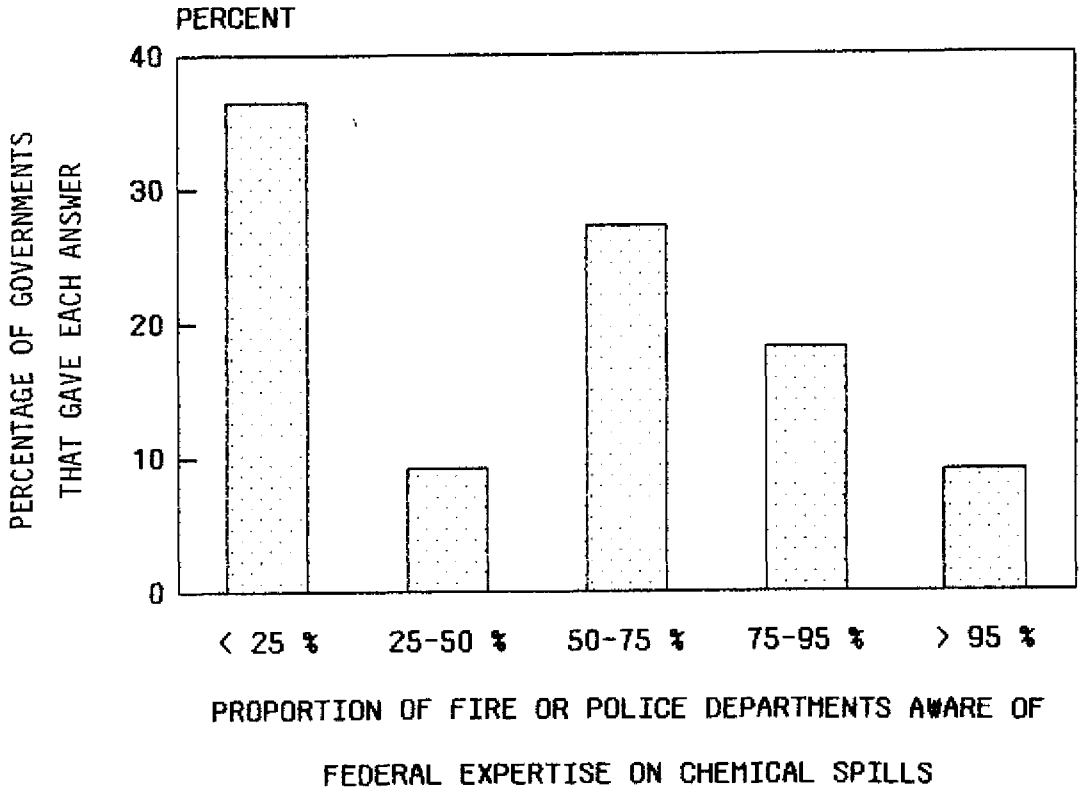
Question 12(vi):

At the municipal/regional level, what proportion of the fire or police departments are:

(vi) aware of other supplementary technical guidance and information sources on chemical emergencies, available from the federal government (federal EPC, DOT, DOE, etc.) through their appropriate contacts?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 12(vi): (Eleven provincial/territorial governments answered this question)



Analysis 12(vi):

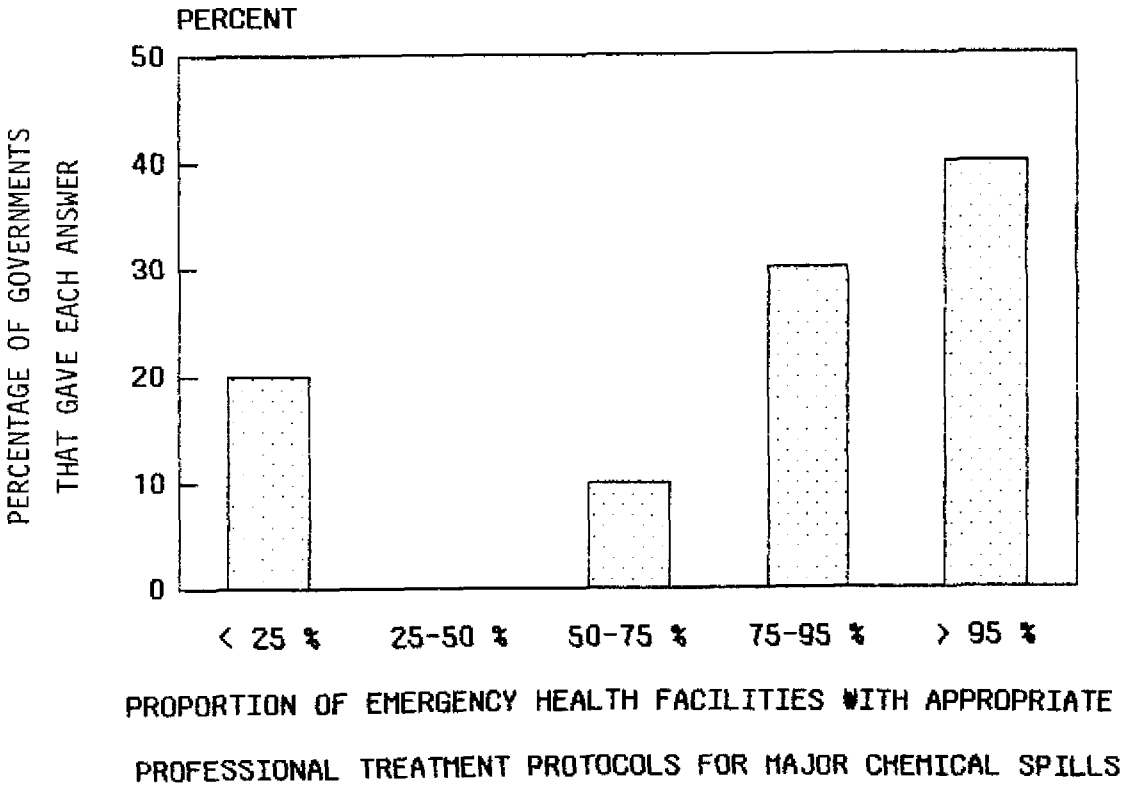
In some provinces, there seems to be little awareness of federal information sources for chemical spills at the municipal/regional level. There appears to be a correlation for a higher level of this local knowledge in those provinces that have traditionally participated in greater numbers of joint federal-provincial programs.

Question 13:

What proportion of emergency health facilities (poison control centers, hospitals, emergency clinics, etc.) have a method of accessing the appropriate professional treatment protocols (i.e., clinical) to deal with a major chemical incident in their region?

(a) less than 25%
(b) 25% to 50%
(c) 50% to 75%
(d) 75% to 95%
(e) more than 95%

Response 13: (Ten provincial/territorial governments answered this question)



Analysis 13:

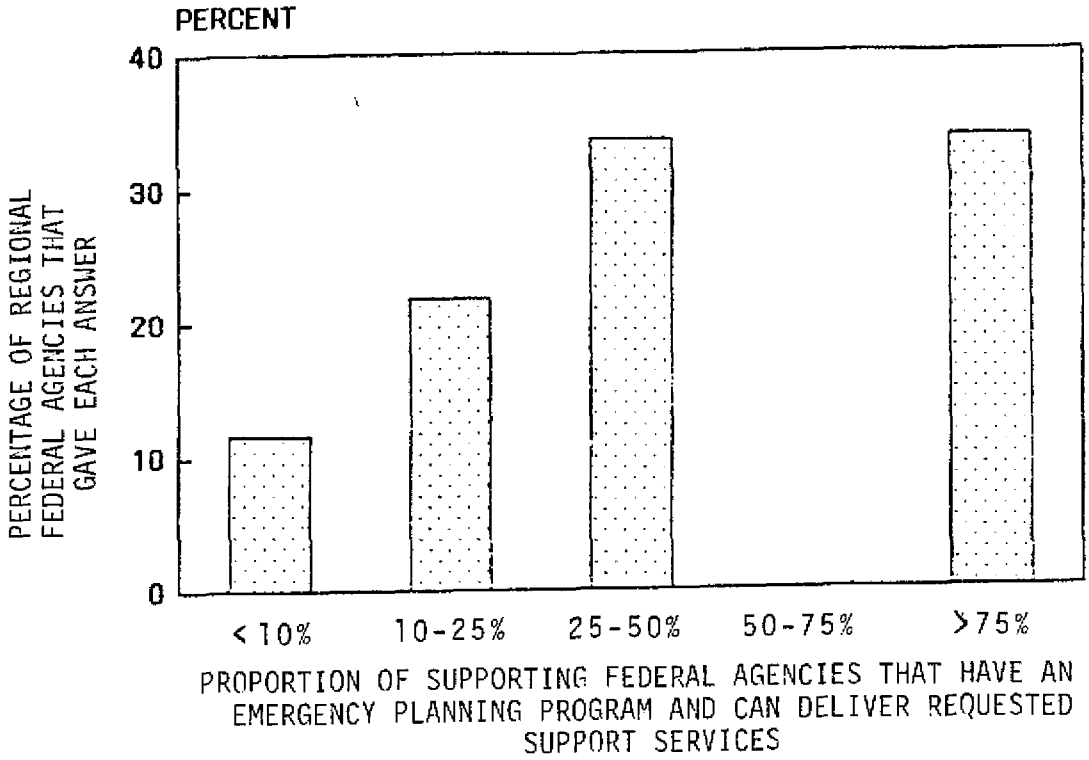
A majority of respondents believe that most emergency health facilities have access to adequate information for dealing with a major chemical incident. According to comments received during the report review period, these views might be modified substantially if specific questions about the broader questions of mass casualty care were to be raised.

Question 14:

What proportion of federal agencies which might be required to provide support services in a major chemical incident have a program in place to meet the requirements of the federal Emergency Planning Order, and can deliver this support at the regional and lower levels?

(a) less than 10%
(b) 10% to 25%
(c) 25% to 50%
(d) 50% to 75%
(e) greater than 75%

Response 14: (Regional representatives of federal government agencies answered this question for nine of the twelve provincial/territorial areas where they are responsibilities)



Analysis 14:

A range of views about federal agency readiness is apparent. One respondent gave a regional summary which seems applicable for the country as a whole - that there are approximately 15 federal agencies that have either a legislated responsibility or a capability for supporting other agencies/governments in the event of a toxic chemical release. Of these 15 agencies, about one-third have few arrangements in place and depend on Emergency Planning Canada to carry them through, one-third have sufficient arrangements in place, and the remaining third's capabilities vary from indeterminate to moderate.

C) **Survey Results Summary**

A survey of this type, with its associated assumptions and limitations, is only of some value in identifying response capabilities and shortcomings. Factors not included in the survey questions are often of primary importance in determining areas for further action or attention. These factors include financial and human resource restraints, as well as the degree of consistent political will for emergency preparedness improvements.

The survey has nevertheless been helpful in confirming opinions or renewing resolutions that more effort could and should be made to prepare for those potentially major chemical accidents which cannot be prevented. The survey shows that many industries and all levels of government must examine their respective areas of responsibility, and work together to improve the nation's collective capability to deal with a chemical release, as a part of preparations for many types of emergencies, both man-made and natural.

APPENDIX III-6

EXAMPLE CHEMICALS AND RELATED MUTUAL-AID RESPONSE PLANS

APPENDIX III-6 EXAMPLE CHEMICALS AND RELATED MUTUAL-AID RESPONSE PLANS

"POTENTIAL" CATEGORY	EXAMPLE PRODUCTS (Canadian Production)	MAJOR MANUFACTURERS AND/OR SUPPLIERS	CCPA/TEAP RESPONSE PLAN YES	CCPA/TEAP RESPONSE PLAN NO	OTHER PLANS FOR MUTUAL AID*
Toxics (TDGA Classes 2.3 and 2.4)	1) Ammonia (14 plants-3.5 million tonnes in 1984)	CIL Cominco Cyanamid Can. Fertilizers	Yes Yes 	 No No	TEAP plan nationally plus western response plan of Western Canada Fertilizer Association
	2) Arsine (?)	Not available			(?)
	3) Chlorine (13 plants-1.4 million tonnes in 1984)	CIL Dow FMC	Initial response may come from TEAP		CHLOREP plan also applies for chlorine
	4) Hydrogen Chloride (13 plants-135 kilotonnes in 1982)	Dow CIL Du Pont	Yes Yes Yes		--
	5) Hydrogen Fluoride (3 plants-69 kilotonnes in 1984)	Allied	Yes		Mutual-aid plan of HF producers in Canada & U.S.
	6) Sulphur Dioxide (2 plants-125 kilotonnes)	CIL Cominco	Yes 	 No	(?) (?)
	7) Hydrogen Sulphide (4 plants and many "sour" wells and gas plants-11.9 kilotonnes in 1980 plus ? kilotonnes of sour gas in -)	Thio Pet Laurentide Many Oil and Gas Cos.		No No No	(?) (?) (?)

* Supplementary to Company Contingency Plan
(?) No information available

APPENDIX III-6 EXAMPLE CHEMICALS AND RELATED MUTUAL-AID RESPONSE PLANS (Cont'd)

"POTENTIAL" CATEGORY	EXAMPLE PRODUCTS (Canadian Production)	MAJOR MANUFACTURERS AND/OR SUPPLIERS	CCPA/TEAP RESPONSE PLAN YES	CCPA/TEAP RESPONSE PLAN NO	OTHER PLANS FOR MUTUAL AID*
Flammable Gases (TDGA Class 2.1)	1) Acetylene (?)	Can. Liquidair		No	(?)
		Union Carbide	Yes		--
		Gulf	Yes		--
	2) Butadiene (Inhib.) (4 plants-260 kilo-tonnes in 1983)	Polysar	Yes		--
		Dow (Supplier)	Yes		--
		Monsanto (Supplier)	Yes		--
	3) Butane (?)	Dome Petroleum		No	PGAC plan applies for butane
		Pacific Petroleum		No	
		Mobil Oil		No	
		Home Oil		No	
	4) Butylenes (8 plants-135 kilo-tonnes in 1983)	Polysar	Yes		--
		Finachem		No	(?)
		Esso Chemical	Yes		--
	5) Ethyl Chloride (?)	Ethyl Canada	Yes		--
		Dow (Supplier)	Yes		--
	6) Ethylene (6 plants-2.2 million tonnes in 1983)	Esso Chemical	Yes		--
		Gulf	Yes		--
		Alta Gas Chem	Yes		--
		Petrosar	Yes		--
		Dow	Yes		--
	7) Ethylene Oxide (3 plants-390 kilo-tonnes in 1984)	Union Carbide	Yes		--
		Dow	Yes		(?)
		Matheson (Supplier)		No	(?)

* Supplementary to Company Contingency Plan
(?) No information available

"POTENTIAL" CATEGORY	EXAMPLE PRODUCTS (Canadian Production)	MAJOR MANUFACTURERS AND/OR SUPPLIERS	CCPA/TEAP RESPONSE PLAN YES	CCPA/TEAP RESPONSE PLAN NO	OTHER PLANS FOR MUTUAL AID*
Flammable Gases (Cont'd) (TDGA Class 2.1)	8) Hydrogen (More than 65 plants incl. 25 large plants-1.1 million kilotonnes in 1983)	Syncrude		No	(?)
		Can. Fertilizers		No	(?)
		Alta Gas Chems	Yes		--
		Cominco		No	(?)
	9) Hydrogen Sulphide (see **"Toxics"** Group 1)	--	--	--	--
	10) Methane (?)	Can. Liquid Air		No	(?)
	11) Natural Gas (3500+ wells-480 million tonnes in 1983)	Many Oil and Gas Cos.		No	(?)
	12) Propane (?)	Superior Consumers Co-op. Dome Petroleum Goliad Mobile Oil Pacific Petroleum Home Oil			PGAC plan applies for propane
	13) Propylene (5 plants-564 kilotonnes in 1983)	Petrosar	Yes		--
		Esso Chem	Yes		--
		Petromont	Yes		--
	14) Vinyl Chloride (2 plants-330 kilotonnes in 1983)	Dow	Yes		--

* Supplementary to Company Contingency Plan
(?) No information available

APPENDIX III-6 EXAMPLE CHEMICALS AND RELATED MUTUAL-AID RESPONSE PLANS (Cont'd)

"POTENTIAL" CATEGORY	EXAMPLE PRODUCTS (Canadian Production)	MAJOR MANUFACTURERS AND/OR SUPPLIERS	CCPA/TEAP RESPONSE PLAN		OTHER PLANS FOR MUTUAL AID*
			YES	NO	
Flammable Liquids (TDGA Class 3.1, 2.2, and 3.3)	1) Carbon Disulphide (?)	Cornwall Chem Thio Pet Chem		No No	(?) (?)
	2) Hydrazine (?)	Not available			(?)
	3) Propylene Oxide (1 plant-63 kilotonnes in 1983)	Dow	Yes		--
Explosive Substances (TDGA Classes 1.1 and 1.5)	1) Ammonium Nitrate (1 plant explosive grade-165 kilotonnes in 1984)	Dupont	Member, but TEAP not established for explosives		Investigation after explosions by Explosives Branch of EMR or by Bureau of Explosives (AAR) if on railway
Toxic Products of Reaction (from TDGA classes 4.2, 6.1 and 9.2)	1) Phosphorus (2 plants-68 kilotonnes in 1984)	Erco	Yes		--
	2) Sodium Cyanide (1 plant-2 kilotonnes in 1982, plus 7 kilotonnes imported)	Dupont (?) CIL (importer)	Yes Yes		-- --

* Supplementary to Company Contingency Plan
(?) No information available