

Data E

Medical Waste Survey

Data E : Medical Waste Survey Questionnaire for Hospital Waste Management

1. General Information

Category	Nos.	Name	Floor Area(m2)	Number of Employee			Beds		Consultations per year
	Quest.			Medical	Administ.	Total	Nos.	Occup.	
I (More than 200 beds)	01	Hospital Rosales	22,000	733	767	1,500	554	90%	242,575
	02	Hospital Maternidad	9,104	607	113	720	308	90%	118,192
	03	Hospital Zacamil		510	140	650	230	43%	90,000
	04	Hospital Bloom		452	411	863	291	80%	1,114
	05	Hospital Psiquiatrico	8,000	980	110	1,090	400	100%	13,822
	06	Hospital Neumologico	11,500	35	347	382	292	74%	56,461
	07	Hospital San Rafael	32,954	284	236	520	220	88%	149,276
	09	Hospital Militar		442	375	817	274	40%	135,146
	15	Hospital Medico Quirurgico	2,156	700	751	1,451	308	100%	94,900
	17	Hospital de Especialidades	6,000	900	400	1,300	325	85%	400,000
	18	Hospital 1 de Mayo		478	394	872	218	97%	35,000
II (50 to 200 beds)	08	Hospital San Bartolo	3,804	112	89	201	60	98%	249,844
	16	Hospital Oncologico		83	137	220	53	79%	50,000
	19	Hospital Psiquiatrico	1,260	84	96	180	103	80%	144,000
	20	Hospital Neumologico	1,326	43	65	108	91	65%	1,000
	22	Hospital Pro Familia	7,350	113	45	158	78	38%	12,031
	23	Hospital Divina Providencia		4	5	9	80	63%	
	24	Hospital de Diagnostico	2,970	109	168	277	62	55%	8,289
	25	Hospital Ginecologico		67	47	114	55	55%	2,280
	26	Hospital Metropolitano	1,197	10		10	30	50%	
	27	Hospital Baldwin		56	61	117	50	20%	1,825
	28	Hospital de la Mujer	5,243	110	74	184	50	60%	
41	Hospital Bautista	15,600	45	8	53	55	60%	4,000	
III (Less than 50 beds)	29	Hospital Central	2,691	40	59	99	28	39%	540
	30	Hospital Centro Pediatrico	5,100	72	62	134	30	33%	8,400
	31	Hospital Centro de Emergencias	500	22	6	28	16	50%	650
	32	Hospital Clinica Mater	210	5	4	9	10	40%	1,800
	33	Hospital Clinica Ginecologica Dres. Farela		13	8	21	10	50%	400
	34	Hospital Climosal	4,050	20	9	29	15	40%	1,150

	36	Hospital Salvadoreño		20	33	53	21	52%	
	37	Hospital de Ojos y Otorrino		10	16	26	14	50%	
	38	Hospital Instituto de Ojos	2,250	5	7	12	10	30%	
	40	Hospital Internacional de Ojos		22	3	25	2	100%	1,800
IV (Without beds)	10	Unidad de Salud San Miguelito		39	41	80			91,357
	11	Unidad de Salud Concepcion		48	36	84			62,864
	12	Unidad de Salud San Antonio Abad	447	32	19	51			59,690
	13	Laboratorio de Salud	8,700	42	21	63			
	14	Medicina Legal		48	18	66			20,000
	21	Consultorio de Salud Zacamil	400	139	270	409			3,733
	35	Cruz Roja		38	154	192			23,000
	39	Clinica Facultad de Odontologia UES	1,500	65	113	178			2,000
<i>Total</i>			<i>156,312</i>	<i>7,637</i>	<i>5,718</i>	<i>13,355</i>	<i>4,343</i>		<i>2,087,139</i>

1.1 General Information of Interviewee

Q.1. What is the number of employee?

Q.2. What is the number of employee?

Q.3. Category of the institution.

<i>Base: Total interview</i>						
<i>Q.03</i>	<i>Category</i>				<i>Total</i>	<i>%</i>
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>		
General Hospital	4	4	4		12	29.3%
Unidad de Salud			1	3	4	9.8%
Hospital of Specialty	6	6	5		17	41.4%
Others	1	2		5	8	19.5%
<i>Total</i>	<i>11</i>	<i>12</i>	<i>10</i>	<i>8</i>	<i>41</i>	<i>100.0%</i>

Q.4. Type of institution:

<i>Base: Total interview</i>						
<i>Q.04</i>	<i>Category</i>				<i>Total</i>	<i>%</i>
	<i>I</i>	<i>II</i>	<i>III</i>	<i>IV</i>		
Public	11	4		7	22	53.7%
Private		8	10		18	43.9%
Others (International Organization)				1	1	2.4%
<i>Total</i>	<i>11</i>	<i>12</i>	<i>10</i>	<i>8</i>	<i>41</i>	<i>100.0%</i>

Q.5. Outline of institution:

01. Number of beds

02. Yearly occupancy

03. Season of high occupancy

Base: Total Interview

Q.05.03	Category				Total	%
	I	II	III	IV		
Jan	6	4	3	5	18	43.9%
Feb	6	3	4	4	17	41.5%
Mar	5	4	4	5	18	43.9%
Apr	3	2	3	4	12	29.3%
May	5	3	5	5	18	43.9%
Jun	7	4	6	4	21	51.2%
Jul	6	3	7	4	20	48.8%
Aug	6	3	4	3	16	39.0%
Sep	7	6	5	5	23	56.1%
Oct	6	4	4	5	19	46.3%
Nov	4	4	5	4	17	41.5%
Dec	3	2	3	3	11	26.8%
Variable		1			1	2.4%

04. Season of low occupancy

Base: Total Interview

Q.05.04	Category				Total	%
	I	II	III	IV		
Jan	3	1	3	1	8	19.5%
Feb	3	1	2		6	14.6%
Mar	1	1			2	4.9%
Apr	2	3	1	2	8	19.5%
Jun		1	1		2	4.9%
Jul	1		2		3	7.3%
Aug	2	2	1	2	7	17.1%
Sep	1	1			2	4.9%
Oct	1		1		2	4.9%
Nov	2		1		3	7.3%
Dec	5	3	5	3	16	39.0%
None	3	2	2	3	10	24.4%
Variable		1			1	2.4%

05. Total floor area

06. Consultations per year

1.2 Evaluation of the Present System

Q.6. Which of the following phrases best represents the present management of solid waste in your institution?

<i>Base: Total Interviews</i>		
<i>Q.06</i>	<i>Total</i>	<i>%</i>
1. Generally there are no problems with the present management	30	73.2%
2. The present system potentially poses a risk for the employees of the area of waste management	4	9.8%
3. The present system potentially poses a risk for the employees and patients	4	9.8%
4. The present management is satisfactory from the internal view point, but constitutes an unacceptable risk for the external environment	3	7.2%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.7. Which of the following phrases better explain the present management of medical solid wastes in the city?

<i>Base: Total Interviews</i>		
<i>Q.07</i>	<i>Total</i>	<i>%</i>
1. Generally there are no problems with the present management	12	29.3%
2. The present system potentially poses a risk for the employees of the area of waste management	1	2.4%
3. The present system potentially poses a risk for the employees and patients	2	4.9%
4. The present system potentially poses a risk for the public	4	9.8%
5. The present management is satisfactory from the internal view point, but constitutes an unacceptable risk for the external environment.	16	39.0%
6. I don't know	6	14.6%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.8.How much responsibility has each of the following aspects in the present situation of the solid wastes? (please tick appropriate boxes)

<i>Aspect</i>	<i>Responsibility</i>									
	<i>Great</i>	<i>Considerable</i>	<i>Low</i>	<i>No</i>	<i>I don't know</i>	<i>Total</i>				
1.Lack of legislation and regulations	22 53.7%	5 12.2%	7 17.1%	3 7.3%	4 9.8%	41 100.0%				
2.Lack of guidelines for the present management	21 51.2%	4 9.8%	9 22.0%	3 7.3%	4 9.8%	41 100.0%				
3.Lack of supervision and control by the authorities	18 43.9%	5 12.2%	13 31.7%	3 7.3%	2 4.9%	41 100.0%				
4.Lack of funds to carry out an appropriate management	19 46.3%	3 7.3%	9 22.0%	2 4.9%	8 19.5%	41 100.0%				
5.Lack of obedience to internal instructions	24 58.5%	6 14.6%	6 14.6%	1 2.4%	4 9.8%	41 100.0%				
6.Lack of training of the equipment	21 51.2%	9 22.0%	4 9.8%	3 7.3%	4 9.8%	41 100.0%				

2. Solid Waste Management

2.1 Definition of waste

Medical wastes include following types of waste from medical care in this questionnaire.

- Blood
- Infectious agent, cultures, fungi
- Non anatomic waste that comes from the medical attention of patients and laboratories
- Pathological waste
- Sharp material (needles, surgical knives, etc.)
- Hazardous waste (chemicals, medicines)
- Radioactive waste

General wastes mean wastes similar to domestic waste (garbage, paper waste, etc.) in this questionnaire.

Solid waste consists of medical waste and general waste.

2.2 Medical Waste Management

2.2.1.Training and Instructions

Q.9.Is there some written instruction to separate and manage medical solid wastes in the institution?

<i>Base: Total Interviews</i>		
<i>Q.09</i>	<i>Total</i>	<i>%</i>
Yes	33	80.5%
No	8	19.5%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.10. If the answer is "Yes" in the previous question Q.9, are there contaminated or hazardous wastes identified and special cautions given?

<i>Base: Q.09. Yes</i>		
<i>Q.10</i>	<i>Total</i>	<i>%</i>
Yes	32	97.0%
No	1	3.0%
<i>Total</i>	<i>33</i>	<i>100.0%</i>

Q.11. How often the staff of waste management is trained as a caution against contaminated or hazardous waste?

<i>Base: Total interviews</i>		<i>Q.09 Written instruction</i>			
<i>Q.11</i>		<i>Yes</i>	<i>No</i>	<i>Total</i>	<i>%</i>
1. Only at the start of the job		5	3	8	19.5%
2. Once a year		8	1	9	21.9%
3. Very often, please explain how often		20	2	22	53.7%
4. Never			2	2	4.9%
<i>Total</i>		<i>33</i>	<i>8</i>	<i>41</i>	<i>100.0%</i>

2.2.2 Storage

Q.12. How do you store general wastes and medical wastes?

<i>Base: Total interviews</i>		
<i>Q12</i>	<i>Total</i>	<i>%</i>
1. We mix them all together	0	0%
2. We store them separately. (Go to Q.14)	41	100.0%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.13. Why don't you separate medical wastes ?

Q.14. How many categories separated?

<i>Base: Q.12 Store separately</i>		
<i>Q.14</i>	<i>Total</i>	<i>%</i>
1. One category	2	4.9%
2. More than two	39	95.1%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.15. Referring to an example given below, please tick appropriate boxes on the answer table to indicate your separation manner of medical wastes.

<i>Base: Q.12 Separate waste (41)</i>						
<i>Type of Waste</i>	<i>Storage</i>		<i>Answer</i>		<i>Total</i>	<i>%</i>
	<i>Mixed</i>	<i>Separated</i>				
1. Blood	3 8.3%	33 91.7%	36	87.8%		
2. Infectious agent, cultures, fungi	5 16.7%	25 83.3%	30	73.2%		
3. Non anatomic waste that comes from the medical attention of patients and laboratories	8 20.0%	32 80.0%	40	97.6%		
4. Pathological waste	6 17.6%	28 82.4%	34	82.9%		
5. Sharp material (needles, surgical knives, etc.)	5 12.2%	36 87.8%	41	100.0%		
6. Hazardous waste (chemicals, medicine)	7 20.6%	27 79.4%	34	82.9%		
7. Radioactive waste	4 25.0%	12 75.0%	16	39.0%		

2.2.3 Waste Generation Amount

Q.16. How many kilograms of waste generated per week? [
]kg/week

<i>Base: Total Interviews</i>						
<i>Category of Hospital</i>	<i>Nos. Hospital</i>	<i>Total beds</i>	<i>Total kg/week</i>	<i>Average kg/week</i>	<i>Maximum kg/week</i>	<i>Minimum kg/week</i>
I	11	3,420	15,027.0	1,366.1	2,546	349
II	12	767	4,644.9	387.1	1,553	30
III	10	156	310.3	31.0	100	2
IV	8	-	780.1	97.5	295	19
<i>Total</i>	<i>33</i>	<i>4,343</i>	<i>20,762.3</i>	<i>506.4</i>	<i>2,546</i>	<i>2</i>

Q.17. Proportion of generated waste

<i>Base: Valid sample(26)</i>							
<i>Tipo2</i>	<i>Category</i>	<i>Average (%)</i>				<i>%</i>	
		<i>I</i>	<i>II</i>	<i>III</i>	<i>Total</i>	<i>Answer</i>	<i>Nos. %</i>
1.	Blood	10.8%	8.6%	10.4%	9.9%	21	80.8%
2.	Infectious agent, cultures, fungi	6.9%	2.9%	3.1%	4.3%	16	61.5%
3.	Non anatomic waste that comes from the medical attention of patients and laboratories	30.5%	36.6%	32.4%	33.3%	25	96.2%
4.	Pathological waste	8.4%	11.8%	8.6%	9.7%	22	84.6%
5.	Sharp material (needles, surgical knives, etc.)	28.2%	18.8%	35.6%	27.2%	26	100.0%
6.	Hazardous waste (chemicals, medicine)	4.2%	2.9%	4.2%	3.7%	20	76.9%
7.	Radioactive waste	0.8%	2.4%	0.7%	1.3%	10	38.5%
8.	Mixed waste	10.2%	16.0%	5.0%	10.6%	9	34.6%
<i>Total</i>		<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>	<i>100.0%</i>		

2.2.4. Waste Treatment and Waste Recycling

Q.18. Are the waste treated? (please tick appropriate boxes)

<i>Base: 39</i>						
<i>Type of Waste</i>	<i>Treatment Method</i>			<i>Total</i>		
	<i>On site</i>	<i>Out side</i>	<i>No Treatment</i>			
1	21 58.3%	13 36.1%	2 5.6%	36		
2	16 53.3%	12 40.0%	2 6.7%	30		
3	9 22.5%	28 70.0%	3 7.5%	40		
4	14 41.2%	10 29.4%	10 29.4%	34		
5	30 73.1%	9 22.0%	2 4.9%	41		
6	4 11.8%	6 17.6%	24 70.6%	34		
7	5 29.4%	2 11.8%	10 58.8%	17		
8	3 25.0%	4 33.3%	5 41.7%	12		

Q.19. How are they treated?(please tick appropriate boxes)

Base: Have treatment

Type of waste	Treatment Method							Total	
	Incineration w/o		Open Burning		Disinfection		I don't		
	Gas cleaning				Chemical	Autoclave	Know		Others
1					22 64.7%	11 32.4%	1 2.9%		34
2					9 32.1%	17 60.7%	2 7.1%		28
3	1 2.7%		1 2.7%		9 24.3%	25 67.6%		1 2.7%	37
4	2 8.3%				15 62.5%	3 12.5%		4 16.7%	24
5			1 2.6%		28 71.8%	8 20.5%		2 5.1%	39
6			2 20.0%		3 30.0%	2 20.0%		3 30.0%	10
7					3 42.9%	1 14.3%	1 14.3%	2 28.6%	7
8					2 33.3%	3 50.0%	1 16.7%		6

Base: Have On Site Treatment

Type of waste	Treatment Method							Total
	Incineration w/o		Open burning	Disinfection		I don't	Others	
	Gas cleaning			Chemical	Autoclave	Know		
1				20 95.2%	1 4.8%			21
2				8 50.0%	7 43.8%	1 6.3%		16
3	1 11.1%			7 77.8%	1 11.1%			9
4	1 7.1%			12 85.7%			1 7.1%	14
5			1 3.3%	26 86.7%	2 6.7%		1 3.3%	30
6			2 50.0%	1 25.0%			1 25.0%	4
7				2 40.0%	1 20.0%		2 40.0%	5
8				2 100.0%				2

Base: Have Out Site Treatment

Type of waste	Treatment Method							Total
	Incineration w/o Gas cleaning	Open burning	Disinfection		I don't Know		Others	
			Chemical	Autoclave				
1			2 15.4%	10 76.9%	1 7.7%		13	
2			1 8.3%	10 83.3%	1 8.3%		12	
3		1 3.6%	2 7.1%	24 85.7%		1 3.6%	28	
4	1 10.0%		3 30.0%	3 30.0%		3 30.0%	10	
5			2 22.2%	6 66.7%		1 11.1%	9	
6			2 33.3%	2 33.3%		2 33.3%	6	
7			1 50.0%		1 50.0%		2	
8				3 75.0%	1 25.0%		4	

Base: Other Treatment

Type of Waste	Other Treatment					Total
	Disintegration	Bury	Formalin	Recycle	Treatment w/o radioactive activity	
3		1 100.0%				1
4		3 75.0%	1 25.0%			4
5		2 100.0%				2
6	1 33.3%	2 66.7%				3
7				1 50.0%	1 50.0%	2

Q.20. If some of wastes are burned or incineration, what do you do with the remained ash?

Base: Generated ash

TW	1. We discharge it together with other wastes	3. We bring it to a specific place.	4. Other	Total
3		1 50.0%	1 50.0%	2
4	2 100.0%			2
5		1 100.0%		1
6		1 50.0%	1 50.0%	2

Q.21. Is any of medical waste recycled?

<i>Base: All interviews</i>		
<i>Q.21</i>	<i>Nos.</i>	<i>%</i>
1. Yes	2	4.9%
2. No.	38	92.7%
3. I don't know.	1	2.4%
<i>Total</i>	<i>41</i>	<i>100.0%</i>

Q.22. Please fill up the followings, with regard to the recycled medical waste items

	<i>Base: Recycled medical waste</i>	
	<i>Nos. of Questionnaire</i>	
	<i>14</i>	<i>16</i>
1. Name of recycled medical waste item	Test tube	Developer/ Fixer
2. Recycled amount:	0.5 every 6 month	5 lt. /Week
3. Method of collection for the recycled medical waste item	Storage	Direct Collection
4. Information of that recycling agent	Ourselves	Ourselves

2.2.5. Waste Discharge

Q.23. How do you discharge medical wastes?

<i>Q.23</i>	<i>Base: All interviews (41)</i>					
	<i>Category of Hospital</i>					
		<i>I</i>	<i>II</i>	<i>III</i>	<i>Total</i>	
1. We separate store but mix discharge.		4 36.4%	7 63.6%	11	26.8%	
2. We separate store and separate discharge	11 36.7%	10 33.3%	9 30.0%	30	73.2%	
3. We mix store and mix discharge				0	0%	
<i>Total</i>	<i>11 26.8%</i>	<i>14 34.1%</i>	<i>16 39.0%</i>	<i>41</i>	<i>100.0%</i>	

Q.24. In case of “separate store but mix discharge”, who is mix them.

<i>Base: We separate store but mix discharge</i>						
<i>Who mix them</i>	<i>Category of Hospital</i>				<i>Total</i>	
	<i>II</i>		<i>III</i>			
1. Collector	3	37.5%	5	62.5%	8	72.7%
2. Our employee	1	33.3%	2	66.7%	3	27.3%
3. Others					0	0%
<i>Total</i>	<i>4</i>	<i>36.4%</i>	<i>7</i>	<i>63.6%</i>	<i>11</i>	<i>100.0%</i>

Q.25. Referring to an example given below, please tick appropriate boxes on the answer table to indicate your discharge manner of medical wastes.

<i>Base: All interviews (41)</i>										
<i>Type of Hospital Waste</i>	<i>Mix Storage</i>			<i>Separate Storage</i>				<i>Total</i>	<i>Answer</i>	
	<i>Discharge</i>	<i>Mix</i>	<i>Total</i>	<i>Discharge</i>	<i>Mix</i>	<i>Discharge</i>	<i>Separate</i>			<i>Total</i>
1	3	100%	3	9	27.3%	24	72.7%	33	36	
2	5	100%	5	5	20.0%	20	80.0%	25	30	
3	8	100%	8	9	28.1%	23	71.9%	32	40	
4	6	100%	6	5	17.9%	23	82.1%	28	34	
5	5	100%	5	12	33.3%	24	66.7%	36	41	
6	7	100%	7	7	25.9%	20	74.1%	27	34	
7	4	100%	4	4	36.4%	7	63.6%	11	15	

Q.26. How many kilograms of waste discharged per week? [
]kg/week

Q.27. Proportion of discharged waste

2.2.6. Collection

Q.28. Whom are collected?

<i>Base: All interviews (41)</i>										
Q.28	Category								Total	
	I		II		III		IV			
1. Private company contracted by us	3	17.6%	9	53.0%	4	23.5%	1	5.9%	17	41.5%
2. Private company contracted by municipality									0	0%
3. Municipality			2	22.2%	5	55.6%	2	22.2%	9	22.0%
4. Others	8	53.3%	1	6.7%	1	6.7%	5	33.3%	15	36.5%
5. No collection service									0	0%
Total	11	26.8%	12	29.3%	10	24.4%	8	19.5%	41	100.0%

<i>Base: Q.28 Others</i>										
Q.28	Category								Total	
	I		II		III		IV			
Bury							1	100.0%	1	6.7%
IML workers							1	100.0%	1	6.7%
ISSS	1	100.0%							1	6.7%
MSPAS	5	55.6%	1	11.1%			3	33.3%	9	60.0%
Own	1	50.0%			1	50.0%			2	13.3%
Own & Private	1	100.0%							1	6.7%
Total	8	53.3%	1	6.7%	1	6.7%	5	33.3%	15	100.0%

Q.29. How are collected.

<i>Base: All interviews (41)</i>										
Q.29	Collectors								Total	
	Private company contracted by us		Municipality		Others					
1. Door to door collection	6	35.3%			3	20.0%			9	21.9%
2. Curb side collection			2	22.2%					2	4.9%
3. Bell collection			6	66.7%					6	14.6%
4. Station collection			1	11.1%	3	20.0%			4	9.8%
5. Others	11	64.7%			9	60.0%			20	48.8%
Total	17	100.0%	9	100.0%	15	100.0%			41	100.0%

Q.30. How many times per week are they collected? Choose one of the following.

<i>Base: All interviews (41)</i>								
Q.30	<i>Collectors</i>							
	Private company		Municipality		Others		<i>Total</i>	
	contracted by us							
1. 3 times or less	9	53.0%	7	77.8%	6	40.0%	22	53.7%
2. 4 or 5 times	3	17.6%	1	11.1%	1	6.7%	5	12.2%
3. More than 5 times	5	29.4%		0.0%	8	53.3%	13	31.7%
4. Irregular		0.0%	1	11.1%		0.0%	1	2.4%
<i>Total</i>	<i>17</i>	<i>100.0%</i>	<i>9</i>	<i>100.0%</i>	<i>15</i>	<i>100.0%</i>	<i>41</i>	<i>100.0%</i>

Q.31. Do the waste collectors come at fixed time on specific days of the week?

<i>Base: All interviews (41)</i>								
Q.31	<i>Collectors</i>							
	Private company		Municipality		Others		<i>Total</i>	
	contracted by us							
1. Yes	13	76.5%	4	44.4%	14	93.3%	31	75.6%
2. No	4	23.5%	5	55.6%			9	22.0%
Not collector					1	6.7%	1	2.4%
<i>Total</i>	<i>17</i>	<i>100.0%</i>	<i>9</i>	<i>100.0%</i>	<i>15</i>	<i>100.0%</i>	<i>41</i>	<i>100.0%</i>

Q.32. How are the wastes finally disposed of? Choose one of the following.

<i>Base: All interviews (41)</i>								
Q.32	<i>Collectors</i>							
	Private company		Municipality		Others		<i>Total</i>	
	contracted by us							
1. We dispose in our property					1	6.7%	1	2.4%
3. They are disposed of at the landfill sites for municipal solid wastes.	14	82.4%	5	55.6%	11	73.3%	30	73.2%
4. I don't know.	3	17.6%	4	44.4%	2	13.3%	9	22.0%
5. Others					1	6.7%	1	2.4%
<i>Total</i>	<i>17</i>	<i>100.0%</i>	<i>9</i>	<i>100.0%</i>	<i>15</i>	<i>100.0%</i>	<i>41</i>	<i>100.0%</i>