

## **Introduction:**

An amputation is a considerable intervention in the physical integrity of an individual, and requires an equally high degree of adjustment to the normal routine of daily life.

In the past, an amputation was an emergency life saving but high risk operation with a high mortality rate. The main reasons for such operations were injury in war or accidents.

Today, modern surgical techniques are employed with the primary goal of creating a fully functional, load-bearing stump.

The causes of amputation have also changed: except in war situations, about 20% of all amputations result from accidents, and the remaining 80% are due to circulatory diseases or diabetes.

Requirements for a successful rehabilitation are the recovery of full functionality and normal outward appearance by means of a well-fitting prosthesis. Older patients, as opposed to younger physically active people, have different requirements in terms of the type of prosthesis they need.

**Terms of reference**

**Establishment of an injury programme in Lebanon.**  
- Preliminary survey on amputation and amputees

## **1-Scope of the problem:**

Amputation affects thousands of people throughout Lebanon and is responsible for around 10% of impairments and is one of the leading causes of disability, having a huge impact on individuals, families, societies and economies, resulting in severe financial pressure on health services.

There are no population – based data available for amputation causes, patterns and trends in Lebanon

The mission of this survey was to describe the burden of amputation, its causes and its trends by collecting complete and high quality amputation data.

The figures will assist the administration in developing programs for amputation prevention and care, and help in monitoring the increased incidences of certain causes of amputation as well as gaining better understanding of the problem.

## **2- Methodology:**

All the records of disabled persons were reviewed from The Right and Assess program of the Ministry of Social Affairs (MOSA) and from the archives of The Prosthetics and Orthotics committee at the Ministry of public Health (MOPH), between April \ May 1995 and February 2006.

Those who had amputations were selected for analysis.

We then reviewed the cases whose amputations took place during the period extending from the beginning of 2001 till the end of 2005, a period that was relatively free of acts of aggression to see if the causes of amputations have shifted away from traumatic events and how this distribution has changed.

### 3- Results:

Out of 56391 disabled persons registered with the (MOSA), there were 4648 amputees having 5049 amputation (table 1).

**Table 1**

Total Number of Cards	<b>56391</b>
Number of amputees	<b>4648</b>
Number of amputations	<b>5049</b>

Fifty – eight percent were from traumatic injury, twenty percent were due to complication of diabetes and 7 % were due to vascular problems (table 2)-(Diagram 1).

**Table 2**

<b>Causes of amputation</b>	<b>Number</b>	<b>%</b>
Traumatic	2986	60%
Diabetes	1009	20%
Dysvascular	376	7%
Congenital	475	9%
Infections	149	3%
Tumorous	51	1%
Others	3	0%
<b>Total</b>	<b>5049</b>	<b>100%</b>

Forty – seven percent of the traumatic events resulted from armed conflicts. 600 amputations were due to mines and around 10 % were consequences of road traffic accidents (table 3)-(Diagram 2).

**Table 3**

**Trauma cases**

<b>Cause</b>	<b>Number of subjects</b>	<b>%</b>
Mines	600	20%
War	1385	47%
RTA	299	10%
Falls	31	1%
Violence	189	6%
Other	491	16%
<b>Total</b>	<b>2995</b>	<b>100%</b>

More than 65% of amputations involved the lower extremity (table 4).

**Table 4:**

	<b>Number</b>	<b>%</b>
Pelvis Disarticulation	34	0.67%
Hip Disarticulation / Above Knee	1141	22.60%
Knee Disarticulation / Below Knee	2024	40.01%
Ankle Disarticulation / Tarsal amputation	221	4.38%
Absence of the forefoot from metatarsal bones	179	1.56%
Upper limb amputation from the scapula	26	0.51%
Shoulder Disarticulation / Above Elbow	227	4.50%
Elbow Disarticulation / Below Elbow	403	7.98%
Wrist Disarticulation	213	4.22%
Absence of all fingers (1Hand)	127	2.52%
Absence of the thumb ( 1Hand)	138	2.73%
Absence of the thumb + 3 Fingers (1Hand)	79	1.56%
Longitudinal deficiency of part of limb	178	3.54%
<b>Total</b>	<b>4990</b>	<b>96.78%</b>

Over the period 2001- 2005, 825 amputees were registered having 914 amputations (table 5)-(Graph 1).

**Table 5**

**Amputations 2001-2005**

	<b>Number</b>
Number of Amputees	825
Number of Amputations	914
11% Double amputees	

The causes of these amputations were mainly diabetes 61%, Trauma 14% and vascular problems 14% Diagram 1.

26% of the traumatic events were due to RTA, 23% 2° mire injuries and 32% following mutilated and crush injuries Diagram 4.

Age group 41-64 accounted for 36.43% of the amputation, while 45.84% were above 64 (Graph 2, Graph 3).

Diabetes accounted for more than 63% of amputation between 26 and 46years Diagram 5.

More than 85% of amputations involved the lower extremity (table 10).

**Table 10**

	#	%
Pelvis Disarticulation	5	0.55%
Hip Disarticulation \ Above Knee	249	27.24%
Knee Disarticulation \ Below Knee	454	49.67%
Ankle Disarticulation \ Tarsal amputation	24	2.63%
Absence of the forefoot from metatarsal bones	77	8.42%
Upper limb amputation from the scapula	1	0.11%
Shoulder Disarticulation \ Above Elbow	11	1.20%
Elbow Disarticulation \ Below Elbow	22	2.40%
Wrist Disarticulation	13	1.42%
Absence of all fingers (1Hand)	11	1.20%
Absence of the thumb ( 1Hand)	18	1.97%
Absence of the thumb + 3 Fingers (1Hand)	4	0.44%
Longitudinal deficiency of part of limb	25	2.75%
<b>Total</b>	914	100%

## **Conclusions:**

- 1- After the end of armed conflicts, the causes of amputations shifted from trauma to diabetes and other vascular problems, occurring at relatively younger age. Studies should be done to analyze whether people at risk, mainly diabetics are receiving proper preventive care.
- 2- Other studies should be done to include all levels of amputations ie toe amputation one or more, finger amputations one or more which are not listed, neglected or not reported to authorities for different reasons.
- 3- Vocational injuries are not reflected anywhere in our survey since they are not listed and not accounted for in the lists reviewed. This deficiency should be stratified in any future study.
- 4- A pilot study \ survey of amputations at all levels is under way and will include more than a Lebanese region (Mohafaza) in an attempt to rectify the present list with special emphasis on pointing out the exact cause of amputation , its level and the demographic pattern of amputations in lebanon.

# CAUSES

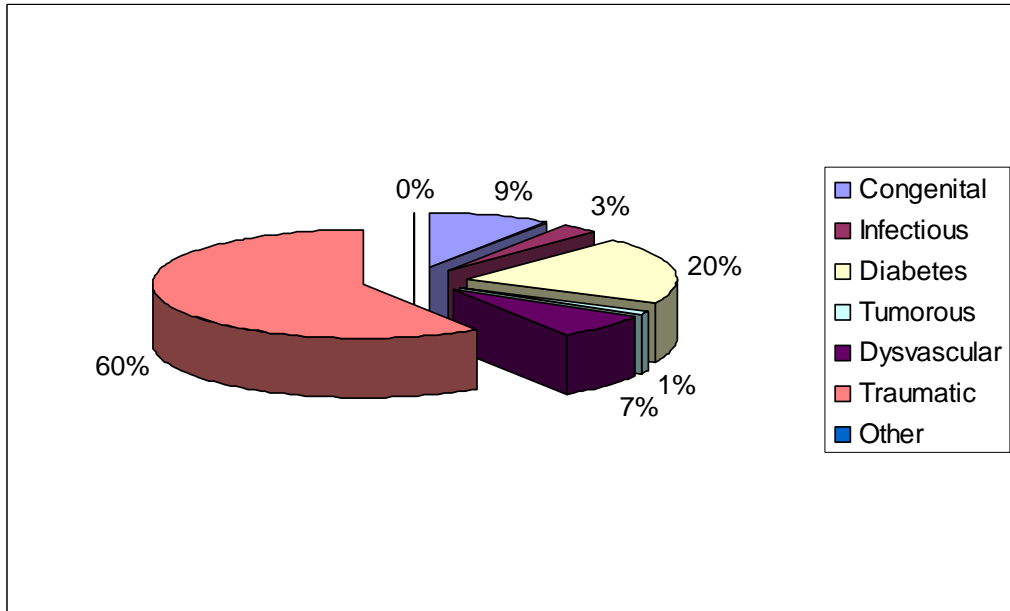


Diagram 1

# TRAUMA CAUSES

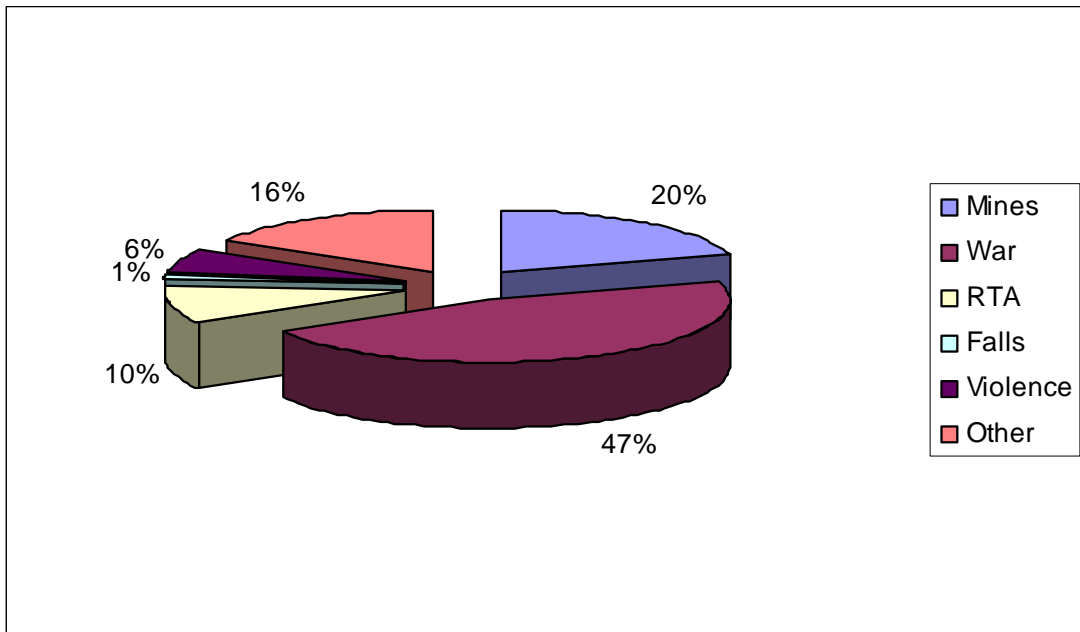


Diagram 2

### Amputations 01-05

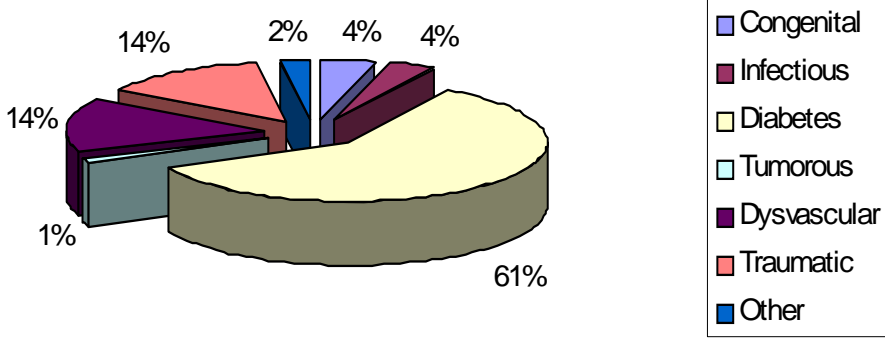


Diagram 3

### Causes of Trauma 01-05

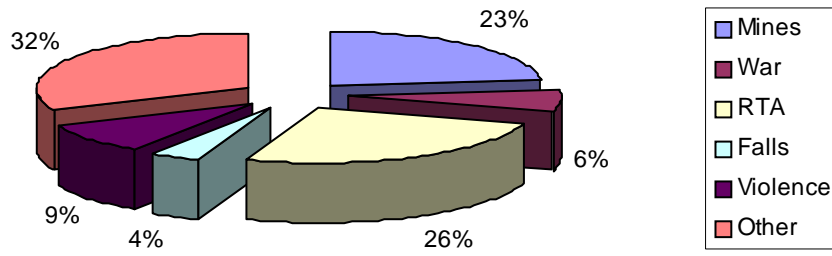
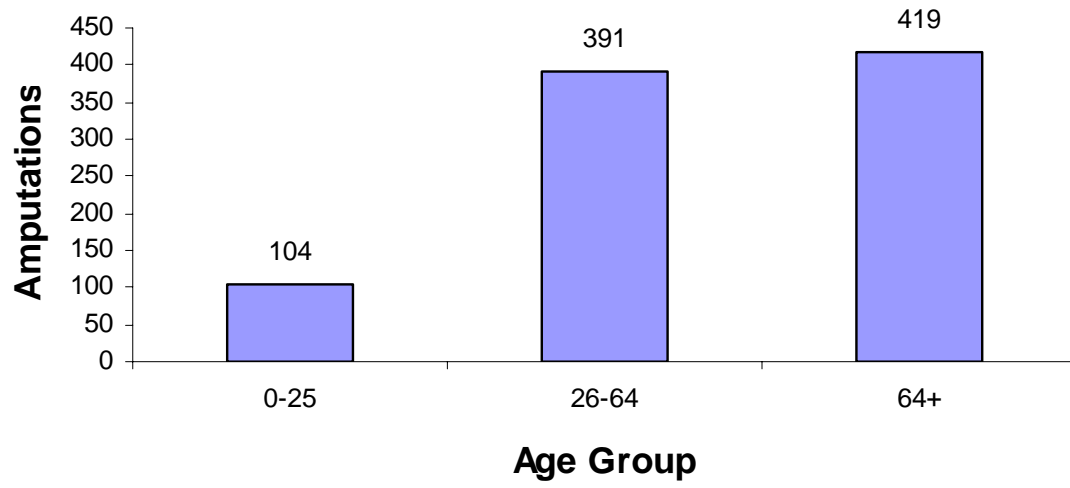
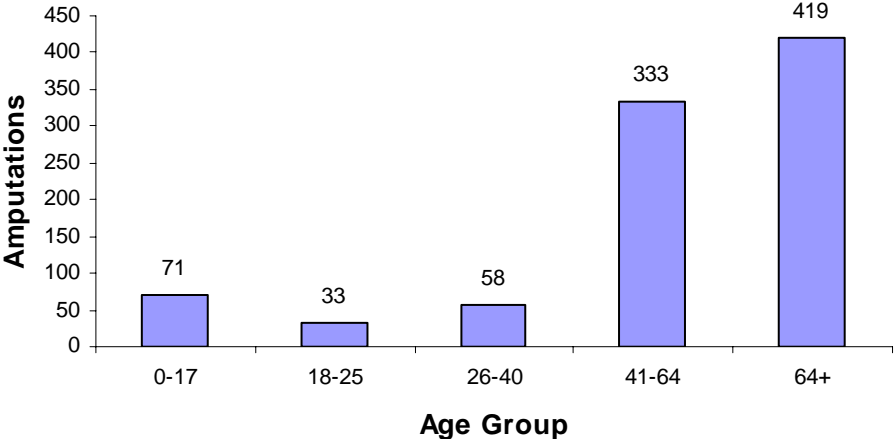


Diagram 4

# Distribution by Age Group



# Distribution by Age Group



Graph 3

# Distribution by Causes

Amputations 26-64 y

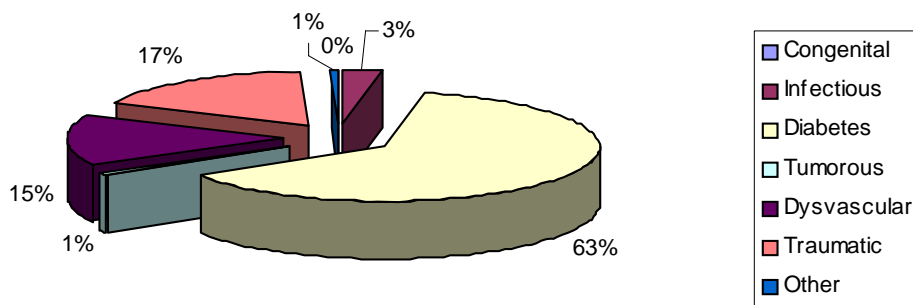
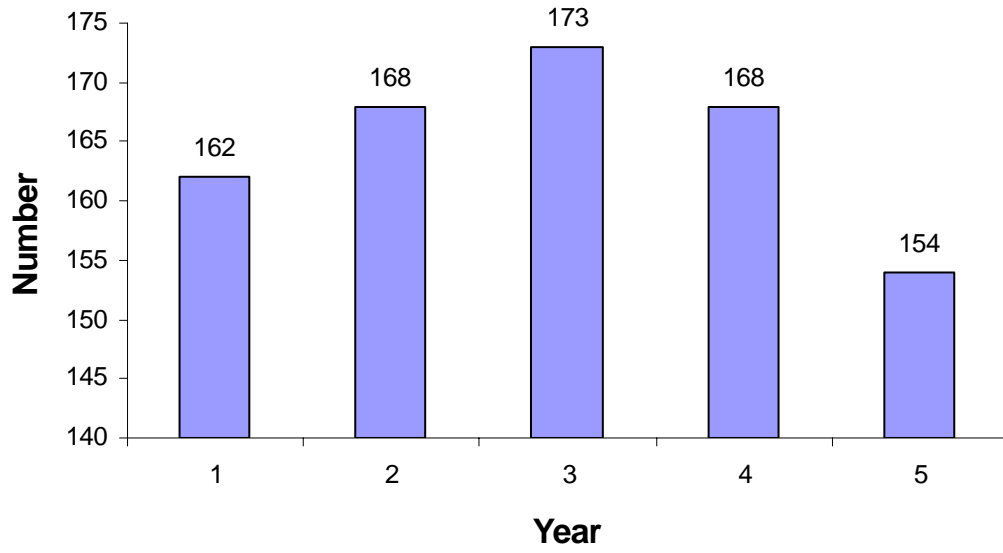


Diagram 5

# Distribution by Year



Graph 1