Chapter 5
Hidden in Plain Sight: X.X. Burials and the Desaparecidos in the Department of Guatemala, 1977–1986

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5.1 Introduction

This is a study of two groups of people, *X.X.*s and *desaparecido*s. The members of both groups have been dead for over 20 years. In addition to being dead, the *X.X.*s and the *desaparecido*s have some other things in common. First, they were citizens of Guatemala, where, from about 1960 onward, thousands were killed in nearly four decades of brutal civil conflict. Second, they died sometime between 1977 and 1986 when the violence reached its peak. Finally, some mystery surrounds them all: for the *X.X.*s, the mystery lies in their identity—we don't know *who* they are; for the *desaparecido*s, the mystery is their ultimate fate—we don't know *where* they are. Some readers will also be mystified by the names of these groups. What is an *X.X.*? What is a *desaparecido*?

In Guatemala, unidentified bodies are medicolegally designated by the initials *X.X.* and are hence the equivalent of the "John (or Jane) Does" of the English-speaking world. Such unfortunates are buried at public expense in municipal cemeteries.

During the conflict, many thousands of Guatemalans were killed—some by left-wing guerillas but the majority by agencies of the government. The whereabouts of most are known—they lie in single or mass graves throughout the country and, to date, over 3,000 of their skeletons have been exhumed and examined by forensic anthropologists. But other thousands were abducted by military or police "death squads" and never seen again—they became *desaparecido*s ("disappeared ones"). They differ from those killed outright in that, while it is virtually certain that they are dead, their final resting places are unknown.

In this study, we propose a theory that the *X.X.*s and *desaparecidos* have one more thing in common: overlapping membership or, simply stated, that hundreds of *desaparecido*s lie buried as *X.X.*s in a single place. This place is *La Verbena*, a large municipal cemetery in Guatemala City.

J. Asher et al., (eds), *Statistical Methods for Human Rights.*

5.1.1 The Cemetery of La Verbena

La Verbena, founded in 1939, is located in a largely working class neighborhood of Guatemala City. It contains few of the elaborate family mausoleums where well-to-do Guatemalans bury their dead. Many of the dead are buried in single graves marked with modest wooden or concrete crosses and hundreds of others are interred in coffin-sized concrete crypts (nichos) arranged in multi-storey blocks—like public housing for the dead. On an ordinary day dozens of people come there, some to bury their dead and others, often carrying small bouquets purchased from the flower vendors who line the street outside the graveyard, to visit them. They seldom wander far from the tree-lined walks of the area where their dead are buried.

There is also a large sector in La Verbana seldom visited by anyone but gravediggers. From a distance, it appears to be vacant and untended. It contains few marked graves and is overgrown with the weeds that crop up quickly in the subtropical climate. But a closer inspection of this desolate area reveals many unmarked graves. It is the place where the *X.X.*s are buried. If our theory is true, it is here, that for more than two decades, hundreds of desaparecidos have, in effect, been hiding in plain sight.

5.2 Medicolegal Death Investigation in Guatemala

In Guatemala, as in most countries, sudden, unexplained, or suspicious deaths must be medicolegally investigated to determine the identity of the deceased, the time and place of death, and, finally, how the victim died. If he or she is found dead at the scene, the body is sent directly to a judicial morgue. If still alive, the victim is taken to an emergency treatment center from where, after being pronounced dead by an attending physician, the body is transported to the judicial morgue. Since the final destination is the same, it undoubtedly matters little to the decedent whether the trip to the morgue is direct or includes the short detour through an emergency room. However, for us, the distinction is important. This is because, as will be seen below, it offers an important clue as to whether he or she might possibly be a *desaparecido* or a victim of one of the many misfortunes of ordinary life.

5.2.1 Identification

The Guatemalan police have the primary responsibility for the identification of the deceased. It is usually made from the *cedula*, an internal passport which citizens are required to have in possession at all times. It contains the bearer's name, date and place of birth, height, photograph, and fingerprints. When found with the deceased, positive identification can be established by matching fingerprints from the body

with those of the *cedula*. In view of its importance in this regard, when a body is found without a *cedula* there is a strong possibility that it was removed to foil identification.

5.2.2 Pathological Examination

At the judicial morgue, the body is examined by an officially appointed physician to determine the *cause* of death. The examination may vary from a simple external inspection when the cause is obvious (e.g., traumatic injuries received in a vehicular accident) to a complete autopsy when it is obscure or complicated. Based on his findings, the medical examiner prepares a report that is forwarded to an investigating magistrate. The latter, after reviewing information supplied by witnesses, the police, and the medical examiner, makes a determination of the *manner* of death, that is, whether it was natural or, if violent, the result of accident, suicide, or homicide.

5.2.3 Disposal of Unidentified Bodies

If a body cannot be immediately identified, it is sent to a municipal cemetery where it is buried as an *X.X*. Interment is prompt since the law requires that unembalmed bodies be buried within 48 hours of death. Cemetery administrators record the exact location of the grave so that if a body is eventually identified by fingerprints or other means, it can be exhumed and turned over to the family.

5.3 Materials and Methods

This study deals with *X.X*. burials in the Department of Guatemala which encompasses the national capital, Guatemala City, and three smaller municipalities, Mixco, Villa Nueva, and Amatitlán. It is the governmental, economic, and cultural center of the country. Although small (2,126 square kilometers), it is the most densely populated and highly urbanized of Guatemala's 22 departments. According to census records, the 1981 population was 1.786 million.

In the Department of Guatemala, all *X.X*.s are buried in *La Verbena*. Although the graves are unmarked, records are kept of their location by row and plot number. For each burial, identified or *X.X*., a notarized burial certificate, the *acta*, is completed. The numerically sequential *acta*s are bound in large ledgers indexed by the surname of the deceased and a reference to his or her *acta* number (*X.X*.s are listed under letter "X"). In August 2004, the authors obtained permission to copy the *X.X*. information from the *La Verbena* records.

5.3.1 Records Analyzed

This survey covers the period from January 1, 1977 through December 31, 1986. This 10-year period was chosen because it spans the years when the violence of the Guatemalan civil conflict reached its peak.

In all, 3,307 *X.X.*s were buried in *La Verbena* during the survey period. Data from each burial certificate were entered into a MS Excel database spreadsheet. After preliminary editing, the data were transferred to a MS Access database. Eighty records with incomplete or ambiguous data and those of 56 infants (mostly stillborn) were excluded, leaving 3,171 records for analysis.[1]

5.3.2 Variables

The data in this study consists of *primary* and *secondary* variables. Primary variables are entries from the burial certificates. Secondary variables are derived from the primary variables.

The primary variables are as follows:

- Administrative: Burial records are organized chronologically by libro, folio, and acta, the latter being the number of the individual burial certificate.
- Sex: As determined by the medical examiner: male, female, or undetermined.
- Age: Age in years as estimated by the medical examiner.
- Date of death: As given by the medical examiner, n.b. by convention, this is the date that the body is first viewed and pronounced dead by the medical examiner. The actual date of death may have been earlier by days or weeks in the case of decomposed bodies or even years if the remains are skeletonized.
- Date received: Date of arrival at La Verbena.
- Date buried: Date of burial.
- Location: Street address or other specific information denoting the location of the body when it came to the attention of medicolegal authorities. Note, however, that the discovery scene may not be the one where death actually occurred since some victims may have died in one place and had their bodies dumped at another.
- Cause: The cause of death as determined by the medical examiner.
- Notes: Supplemental information entered on the burial certificate.

The secondary variables are as follows:

- Semester: The abstracted records consisted of all *X.X.* burials from January 1, 1977 to December 31, 1986, a period of 10 years. For analytic purposes, the data are treated in 0.5 year units, yielding 20 *semesters*. For example, semester 77.2 includes all *X.X.* burials recorded during the last 6 months of 1977.

[1] For the remainder of this chapter, we shall call these data the Guatemala X.X. Study Database (GSD)

- Period: For reasons that will be made clear below, the 20 semesters of this study fall into two periods. The 11-semester *baseline* (BASE) period comprises the first four (77.1–78.2) and last seven semesters (83.2–86.2). It is interrupted by the 9-semester *elevated* (ELEV) period (79.1–83.1).
- Regime: Governmental regime during which death occurred.
- Place pronounced: Whether the victim was pronounced dead at the scene where the body was found (PAS) or at a hospital (PAH).
- COD: From a review of the causes given by the medical examiner, the deaths are classified into the following *secondary* variables:
  - Natural causes (NAT)
  - Violent causes (VIO)
  - Gunshot wounds (GSW)
  - Asphyxiation (ASP)
  - Edged instruments (EDG)
  - Generalized trauma (GNT)
  - nCOD: In cases of violent death, whether the traumata recorded was *single* or *multiple.*
  - MUT: Evidence of postmortem mutilation.
  - UDIK: Unidentified killed listed in the CIIDH database.

5.3.3 Data Limitations

The burial certificate data have two limitations:

1. Cause: The cause of death entered on the burial certificate is the summary diagnosis of the medical examiner and does not necessarily include secondary findings included in his full report. For example, if a body exhibited long-term physical abuse from torture but died of a gunshot wound, the former finding may or may not be found on the burial certificate.
2. Manner: The burial certificates offer no clue to the *manner* of death, that is, whether it was due to homicide, suicide, accident, or undetermined. The difficulty this presents is illustrated by gunshot wounds. In such cases, there is no clue to whether the victim was murdered, committed suicide, shot accidentally, or the evidence was insufficient to make a determination. Presently, the reports listing the manner of death, scattered in magisterial archives throughout the Department, are not readily accessible.

5.3.4 Assumption of the Present Study

In modern societies the number of unidentified bodies that turn up annually is a non-random subset of overall mortality. Thus, factors influencing the total number of people of a city, province, or country who die each year also act on the component

of these deaths that go to their graves unidentified. The absolute number of unidentified dead varies widely among societies. The most obvious factor influencing that number is population size: all things being equal, more people die each year in large populations than in small and, hence, larger numbers of the dead are apt to be unidentified. Also important are conditions affecting general health and the sophistication of the medicolegal system charged with the task of identification of the victims of violent death. As a result, the annual number of unidentified dead may be many times higher in poor countries like Guatemala than in healthier and wealthier nations.[2]

An underlying assumption of the present study is that, within a given jurisdiction, the normal "load" of unidentified bodies tends to remain fairly constant from year to year and that a significant departure from this baseline suggests an exceptional agent at work. Such agents might include natural events like hurricanes, earthquakes, floods, and epidemics that overwhelm the capacity of the local medicolegal death investigation system to deal with mass casualties. But not all disasters are natural: man-made events such as serial or mass murders, warfare, and political violence can produce similar results. The isolation and identification of such factors can be approached in much the same manner as epidemiologists isolate and identify the etiological agents of a natural disease.

As examples of the relative stability of the normal load of unidentified bodies, we have calculated statistics over a 10-year period from four highly urbanized jurisdictions comparable in size to the Department of Guatemala (Table 5.1).[3]

The third column in Table 5.1 shows average annual number of unidentified bodies as a function of population size in each jurisdiction. Its almost sixfold range represents the interaction of many demographic (age, sex, ethnicity, etc.) and social (poverty levels, crime rates, etc.) variables as well as the overall effectiveness of the jurisdiction's death investigation system. Despite the foregoing differences, the number of cases observed from year to year is relatively low, ranging from zero to fourteen. This variation represents chance fluctuation from the baseline. Suppose, however, that a catastrophic event such as a hurricane or terrorist bombing resulted

Table 5.1 Unidentified bodies found in four urbanized jurisdiction in the United States and Europe, 1995–2004

Jurisdiction (and major city)	Population (millions)	Unidentified per million	Annual cases	Min	Max
Clark County, Nevada (Las Vegas)	1.38	5.96	8.2	2	14
Fulton County, Georgia (Atlanta)	0.82	3.68	3.0	0	5
Harris County, Texas (Houston)	2.82	1.03	2.9	0	12
Province of Milan (Milan)	3.71	1.78	6.6	3	10

Source: www.doenetwork.org/uidlinks.html (accessed May 6, 2007).

[2] In 1996, the homicide rate in Guatemala City was 101.5 per 100,000 inhabitants, placing it third among major urban areas of the Western Hemisphere after the Columbian cities of Medellin and Calí with 248 and 112 per 100,000, respectively (Piquet Carniero 2000).

[3] Compiled from data provided through http://www.doenetwork.us/uidlinks.html.

in massive casualties among which many could not be identified. This would produce a strong increase in the number of unidentified bodies for the year in which the event occurred.

To illustrate, we have constructed a hypothetical jurisdiction based on the pattern observed in the four jurisdictions shown in Table 5.1. In this example, the number of unidentified bodies reported normally fluctuates randomly around an average of about five per year. But in the fourth year, 45 unidentified bodies are reported. As shown in Fig 5.1, this would produce in a sharp departure from the normal baseline. Clearly, such a transient peak signals a highly unusual event during the year in question, and that finding would trigger a search for the etiological agent responsible. Closer investigation of the records of year 4 would reveal the event responsible—perhaps a mass disaster such a hurricane, or even the activities of an unusually prolific serial killer.[4]

In the example in Fig. 5.1, we have set the normal load of unidentified bodies to five—which appears to be fairly typical of the jurisdictions shown in Table 5.1 characterized by low crime rates and sophisticated medicolegal death investigation systems. In jurisdictions where those conditions do not apply, the baseline might be much higher but one would still expect to find a pattern of relatively low random fluctuations around the mean in normal years. Significant departures from the normal regression would excite the curiosity of an epidemiologist.

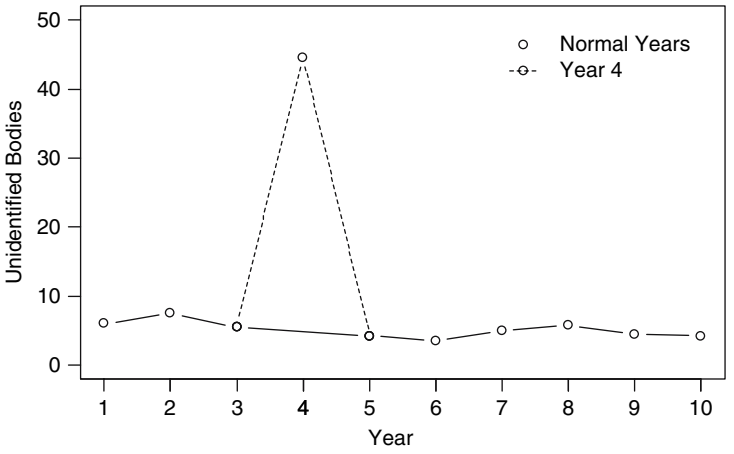

Fig. 5.1 Hypothetical jurisdiction
Source: Simulated data

[4] Perhaps Hurricane Katrina, which hit New Orleans in August 2005, provides another example. Although normal baseline values are lacking for New Orleans and surrounding jurisdictions, it is safe to presume that they are not too different from the urbanized jurisdictions tabulated above. Five months after the storm, 114 of the 1,417 officially reported victims had not been identified (New York Times, February 2, 2006).

5.4 Results

The distribution of *X.X.* deaths by semester is shown in Fig 5.2. Its overall pattern shows two upward fluctuations. The first, and longest, began in January 1979 and ended in July 1983. It is bimodal with a peak of 217 deaths in early 1979 and another of 358 in the latter half of 1981. The second, more modest, increase occurred in 1986 when deaths increased to about 160 per semester. These upsurges rise from a baseline of slightly over 100 deaths per semester.

We will assume that the baseline represents the number of *X.X.* deaths normally expected and, conversely, significant departures are anomalous. Linear regression analysis of the baseline values yields the following equation where D_p is the number of deaths predicted:

$$D_p = -1.152 \text{ (fractional year)} + 2389$$

Thus, during semester 81.2, the predicted number of *X.X.*s would be

$$D_p = -1.152(1981.75) + 2389$$
$$D_p = 105.2$$

Yet, in fact, 358 *X.X.*s—more than three times the number predicted—occurred during semester 1981.2. This number far exceeds the upper 99 percent prediction limit for the equation. Subtracting the predicted number of deaths from those actually observed (D_o) leaves the number in excess (D_x) of those predicted:

$$D_x = D_o - D_p$$
$$D_x = 358 - 105$$
$$D_x = 253$$

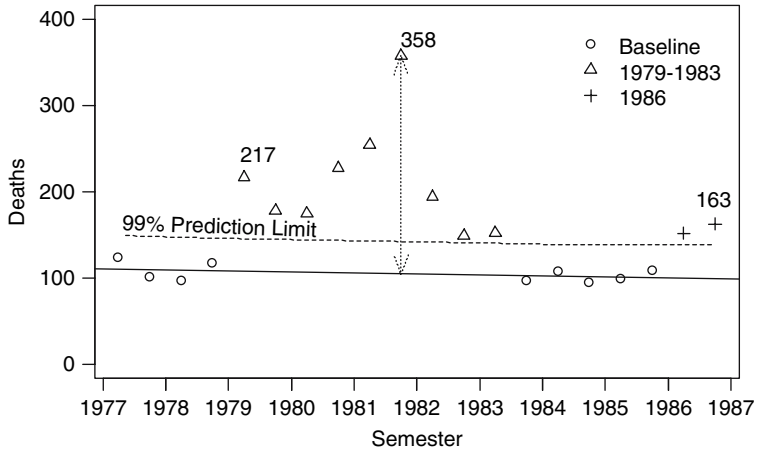

Fig. 5.2 All X.X. deaths by semester (*N*=3,171)
Source: GSD

In other words, during the last 6 months of 1981, 253 more *X.X*s were buried than would be normally expected. Altogether, the estimated number of excess *X.X*.deaths is 1,054—one-third of the 3,171 recorded. Who were they? How did they die? These questions are explored below.

5.4.1 Natural Deaths

The 806 deaths from natural causes make up close to one-fourth of the series. Diagnoses range from infectious diseases such as tuberculosis to chronic conditions associated with malnutrition, alcoholism, and degenerative diseases of old age. Those dying of natural deaths were older than those who died violently by more than a decade and about 87 percent were male. The age and sex differences between the two groups are statistically significant (Table 5.2).

Natural deaths averaged 40.3 ± 13.8 per semester, remaining constant until the last semester of 1986 when they rose above the 95 percent prediction limit. This increase accounts for the rise in the overall number of *X.X*. deaths during the same year (Fig 5.3).[5] It is clear, however, that they did not contribute to the major increase between 1979 and 1983. In other words, this earlier rise must have been due to the other major component of our series: violent deaths.

5.4.2 Violent Deaths

A total of 2,365 *X.X*.s died violently. They can be divided into two groups depending on whether the victim was pronounced dead at the scene (VPAS) or at a hospital (VPAH). The latter numbered 520 or 22 percent of all violent deaths. They

Table 5.2 Natural and violent X.X. deaths by sex and age

Variable		Natural	Violent	Total	Statistical tests	df	P
	Mean	46.05	32.50		Unpaired t (Welch)		
Age	S.D.	13.97	11.88		$t = 24.668$		
	N	806	2,365	3,171		1, 224	<0.0001
Sex	Male	700	2,132	2,832	Chi-Square (Yate's)		
	Female	106	233	339	$\chi^2 = 6.513$	1	<0.0107

Source: GSD

[5] While it is beyond the scope of this study to determine the factor(s) responsible for this 1986 increase in natural deaths, one might speculate it was at least partly due to the many refugees displaced from the countryside as a result of the massive military campaign conducted in the Highlands and other remote areas under the Rios Montt regime in 1982–1983. Targeted primarily against the Mayan indigenes, it resulted in the destruction of hundreds of villages. While thousands of survivors fled to Mexico, many found refuge in Guatemala City. Destitute, malnourished and often alone, many, no doubt, succumbed from poverty-related natural causes in the streets and alleys of the capital. With no one to identify their bodies, such unfortunates were highly likely to be buried as *X.X*.s.

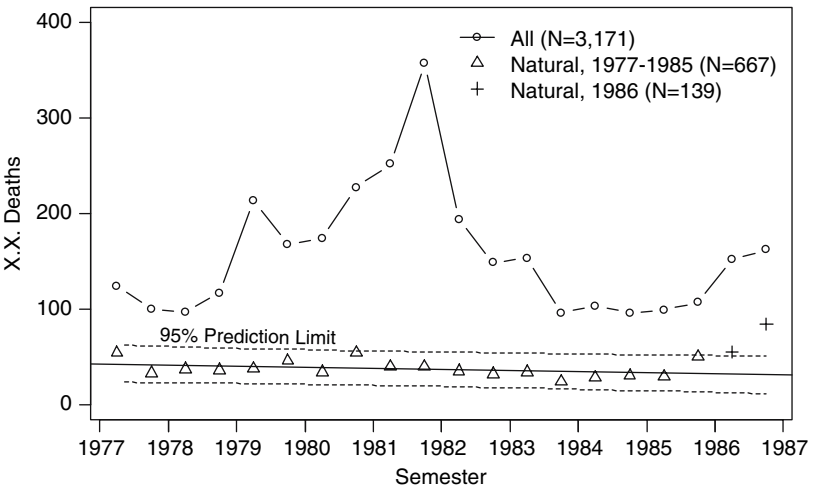

Fig. 5.3 Natural and all X.X. deaths, 1977–1986
Source: GSD

remained low and declined slightly during the survey period, averaging 26 ± 7.7 per semester. As shown in Figure 5.4, they did not contribute to the 1979–1983 rise in *X.X.* deaths.

One thousand eight hundred and forty-five victims were pronounced dead at the scene, outnumbering VPAH deaths by more than three to one. In contrast to the VPAH deaths, the temporal distribution of the VPAS series is highly correlated with the overall distribution of *X.X.* deaths ($r = 0.97$, $r^2 = 0.94$, $p < 0.0001$). From this it

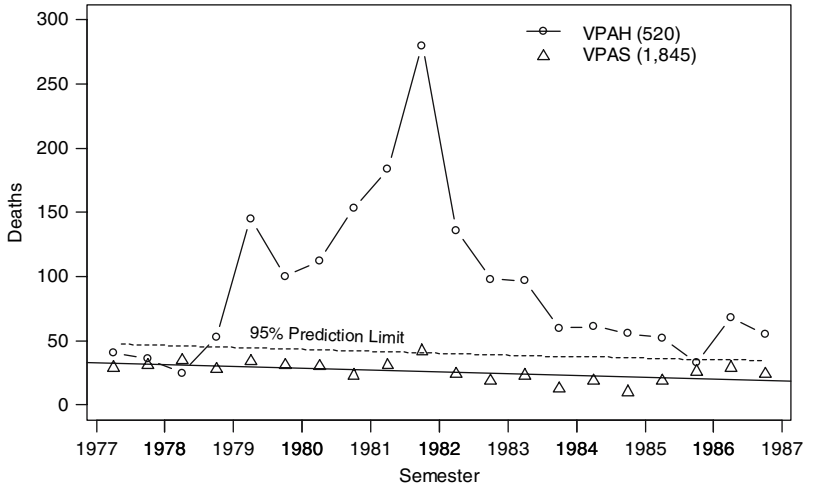

Fig. 5.4 Violent deaths pronounced at scene (VPAS)
Source: GSD

Table 5.3 Distribution of VPAS deaths by age and sex

			Age		Sex		
Cause of death	Count	Percent	Mean	S.D.	Male	Female	Percent female
Gunshot wound	673	36.5%	28.18	7.65	627	46	6.8%
Asphyxiation	387	21.0%	30.33	9.10	340	47	12.1%
Edged instrument	259	14.0%	28.85	9.09	243	16	6.2%
Generalized trauma	526	28.5%	35.47	12.89	469	57	10.8%
Total	1,845	100.0%	30.80	10.34	1,679	166	9.0%

Gunshot wounds (GSW's): Two deaths were caused by shotguns (escopeta); the rest were bullet wounds. Burial records do not indicate whether bullet wounds were caused by handguns, machine pistols, or rifles.

Asphyxiation (ASP): The 387 asphyxial deaths include 225 strangulations (manual and ligature), 86 hangings, 56 drownings, 11 from suffocation and 9 from aspiration of foreign bodies. The higher incidence in females is statistically significant (Fisher's exact p (2-sided) = 0.021).

Deaths from edged instruments (EDG): These 259 deaths include lacerations and stab wounds from weapons ranging from knives to machetes.

Generalized trauma (GNT): Five hundred and twenty-six VPAS deaths were due to generalized trauma. In these, the examining physician simply described contusions, lacerations, and/or fractures without giving any indication of how they occurred. In general, they are typical of injuries sustained in vehicular, industrial, and domestic accidents. Undoubtedly, they also include blunt force trauma homicidally inflicted in altercations such as fistfights and in the course of spousal or child abuse. Also, some may have occurred while the victim was incarcerated.

GNT victims were significantly older than those of other forms of VPAS death (ANOVA, 1-way, $p < 0.0001$) and their ages varied more widely (Table 5.3). This age difference probably reflects the fact that many and, perhaps the majority, of GNT victims died from falls, pedestrian/vehicle impacts, and other mishaps to which the very young and the elderly are particularly susceptible.

Source: GSD

is obvious that the upsurge in *X.X.*s buried in *La Verbena* between 1979 and 1983 was due almost entirely to VPAS victims.

The distribution of VPAS deaths by age and sex is shown in Table 5.3 The 673 gunshot wounds are the largest component of the series (36.5 percent), followed by deaths from generalized trauma (28.5 percent), asphyxiation (21 percent), and edged instruments (14 percent).

The categories of VPAS deaths by semester are shown in Table 5.4. Although differing in pattern and scale, all show values above the baseline for the nine-semester

Table 5.4 Means and standard deviations of VPAS deaths by period

		Gunshot wounds		Asphyxiation		Edged instruments		Generalized trauma	
Period	Count	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
BASE	11	14.0	4.8	8.7	5.7	6.5	3.3	19.9	6.6
ELEV	9	57.7	35.3	32.3	13.2	20.9	14.9	34.1	9.6
Unpaired *t* test (Welch corr.) p =		<0.01		<0.001		<0.05		<0.01	

Source: GSD

period (shown in red) from 79.1 to 83.1. Values exceeding the 95 percent prediction limits of their baseline linear regressions vary: all nine semesters were significantly higher for gunshot wounds, seven for asphyxial deaths, four for edged instruments, and three for generalized trauma. In all groups, the differences between the semester means of the baseline (BASE) and elevated (ELEV) periods were statistically significant (Fig 5.5).

The excess numbers of VPAS deaths during the ELEV period calculated from the baseline regressions for each cause of death are shown in Table 5.5. Nearly half (45.3 percent) were due to gunshot wounds. One-quarter (25 percent) were deaths by asphyxiation; deaths from edged instruments (15.1 percent) and blunt force trauma (14.6 percent) make up the rest. The total from all causes yields an estimate 889 excess *X.X.* deaths during the ELEV period.

5.4.2.1 Gunshot Wounds to the Head

During the BASE period, of 154 VPAS firearm deaths reported, 74 percent exhibited one or more gunshot wounds to the head. This rose to 84.8 percent during the ELEV period. This difference is significant at the 0.01 probability level (Table 5.6). The implications of this finding are discussed more fully below.

5.4.2.2 Single and Multiple Traumata

Table 5.7 shows the incidence of cases exhibiting single or multiple traumata. The latter includes cases involving more than wound of the same type (e.g., multiple stab wounds of the thorax) or more than one type of violence (e.g., GSW *and* GNT). Multiple wounds occur more frequently in homicides than in suicides or accidents.

Multiple traumata due to gunshot wounds, asphyxiation, and edged instruments increased significantly during the ELEV period. This finding indicates a rise in the intensity of the violence in these types of death and is associated with the phenomenon of *overkill*—the infliction of trauma beyond what is required to cause death.

5.4.2.3 Postmortem Alteration of Remains

Thirty-two bodies were altered postmortem, apparently to hinder identification. All but two of the cases—both 1985 decapitations—were reported during the ELEV period. The difference is significant (*Fisher's exact test, $p = 0.004$*).

Twelve were burned beyond recognition; seven had died of gunshot wounds and five by ligature strangulation. The other twenty cases exhibited postmortem mutilation. In three, the hands had been amputated after ligature strangulation. They were found together outside Guatemala City on the Palencia highway on January 6, 1982.

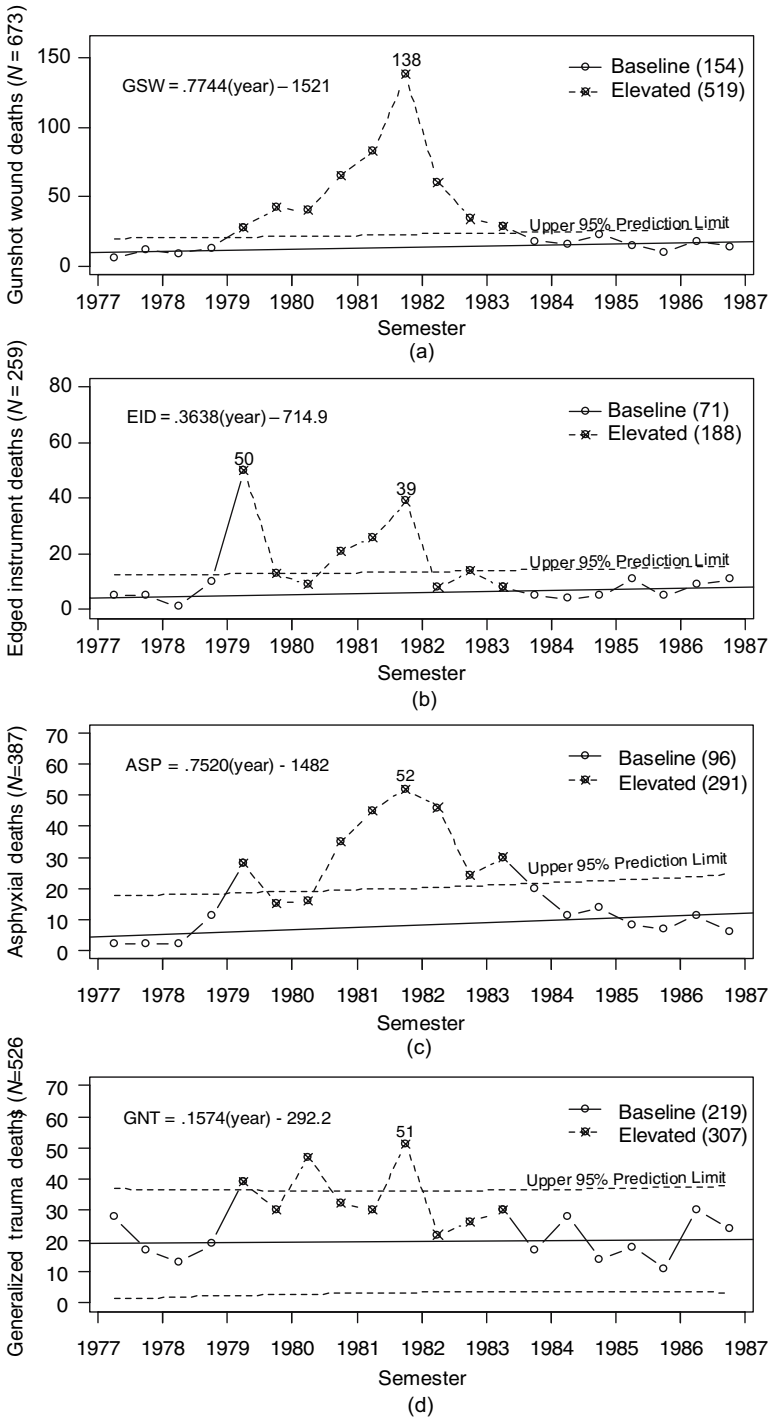

Fig. 5.5 X.X. Burials by cause of death
Source: GSD

Table 5.5 Excess VPAS deaths during the ELEV period by cause[8]

	Gunshot wounds			Asphyxiation			Edged instruments			Generalized trauma			
Semester	Predicted	Observed	Excess	Predicted	Observed	Excess	Predicted	Observed	Excess	Predicted	Observed	Excess	Total excess
1979													
Sem 1	11.4	28	17	6.1	28	22	5.2	50	45	19.4	39	20	103
Sem 2	11.8	42	30	6.5	15	8	5.4	13	8	19.5	30	11	57
1980													
Sem 1	12.2	40	28	6.9	16	9	5.6	9	3	19.5	47	27	68
Sem 2	12.6	65	52	7.3	35	28	5.8	21	15	19.6	32	12	108
1981													
Sem 1	12.9	83	70	7.7	45	37	6.0	26	20	19.7	30	10	138
Sem 2	13.3	138	125	8.1	52	44	6.1	39	33	19.8	51	31	233
1982													
Sem 1	13.7	60	46	8.4	46	38	6.3	8	2	19.9	22	2	88
Sem 2	14.1	34	20	8.8	24	15	6.5	14	7	19.9	26	6	49
1983													
Sem 1	14.5	29	15	9.2	30	21	6.7	8	1	20.0	30	10	47
Total	116	519	403	69	291	222	54	188	134	177	307	130	889
% Excess	45.3			25.0			15.1			14.6			100

Source: GSD.

Table 5.6 Distribution of VPAS gunshot wounds to head and other body regions by period

Period	Head	Other	Total	Percent head	Fisher's exact test
BASE	114	40	154	74.0	p (2-sided) = 0.004
ELEV	440	79	519	84.8	
Total	554	119	673	82.3	

Source: GSD.

The remaining 17 were decapitated. Six, all males, were killed on August 23, 1981 and found together along the El Salvador highway about 25 km outside the City. Five weeks later, two females in their early twenties were found decapitated alongside the *Ruta al Pacifico* highway 22 km from the capital.

In contrast to the VPAS series as a whole, in which 166 (9.0 percent) of the victims were female, seven (21.9 percent) of these 32 victims were female—a statistically significant difference (*Fisher's exact test, $p = 0.021$*).

5.5 Discussion

As shown above, the increase in *X.X.* deaths during the ELEV period was due to an upsurge in VPAS deaths. The higher number of deaths displaying multiple traumata, gunshot wounds to the head and instances of postmortem mutilation indicate an increase in the intensity of violence during this 4-year period. Possible reasons for these findings are discussed below.

5.5.1 Ordinary Criminal Activity

During the ELEV period, the rate of VPAS deaths (23.6/month) was almost threefold than observed during BASE period (8.3/month). At the same time, the number of VPAH victims remained constant. To explain these findings as the result of common crime, we would have to accept the unlikely proposition that, beginning in late 1979, ordinary murderers not only tripled their activities but took extraordinary pains to make sure their victims died at the scene and then, after 4 years of unmitigated mayhem, reverted to their still-lethal but more benign old habits.

5.5.2 War and Terrorism

Civil and military conflict inevitably leaves many unidentified dead. Our survey spans the years when the struggle between the guerillas and government peaked in violence. Of the 28,513 documented killings and disappearances in Guatemala

Table 5.7 Single and multiple traumata by cause of death

	Gunshot wounds			Asphyxiation			Edged instruments			Generalized trauma		
Period	Single	Multiple	Percent multiple	Single	Multiple	Percent multiple	Single	Multiple	Percent multiple	Single	Multiple	Percent multiple
BASE	88	66	42.9	92	4	4.2	36	35	49.3	132	87	39.7
ELEV	185	334	64.4	246	45	15.5	55	133	70.7	178	129	42.0
Fisher's Exact, $p=$	<0.0001			0.0025			0.0020			n.s.		

Source: GSD

between 1977 and 1986, the names of only 5,714 (20.1 percent) of the victims are known. It is thus logical to explore the possibility that at least some of the *X.X.*s buried in *La Verbena* were victims of the conflict.

Five governments ruled Guatemala during the survey period (Table 5.8) which includes parts of the Laugerud Garcia and Cerezo Arévalo regimes and entirely encompasses those of Generals Lucas Garcia, Rio Montt, and Mejía Víctores. Three of the five incumbents were elected and two took power by military coup.

Figure 5.6 shows the mean number of VPAS deaths per month during the tenure of each incumbent. Under the rule of General Lucas Garcia, the monthly average of VPAS deaths was 25.2, a nearly fivefold increase over those of his civilian predecessor, Laugerud Garcia. From this peak, they declined to 14.9 per month during the incumbency of General Rios Montt and then to about 10 per month under General Mejía Víctores and Cerezo Arévalo. It is clear that the increase in VPAS deaths during the ELEV period occurred during the regimes of Generals Lucas Garcia and Rios Montt.

5.5.3 State Terrorism in Guatemala

Political violence pitted an ultra-rightist state against extremists of the left. Both sides committed terrorist acts such as assassinations, massacres, and disappearances. However, about 90 percent of the cases so far documented were committed by agencies of the State—military, police, and covert paramilitary groups. The State's war against subversion was conducted in two overlapping campaigns best characterized as *rural* and *urban*. Although the rural campaign, waged primarily against the indigenes of the rugged and remote western highlands, claimed the vast majority of victims, our focus here is limited to the urban campaign which reached its peak in 1980–1982 during the regime of General Lucas Garcia.

Table 5.8 Guatemalan presidential regimes during present study

Regime	Background of incumbent	Entered office by	Dates in office during present study	Tenure during study (years)
Kejell Eugenio Laugerud Garcia (LG1)*	Military	Election	1/1/1977–7/1/1978	1.50
General Romeo Lucas Garcia (LG2)	Military	Election	7/2/1978–3/23/1982	3.73
General José Efrain Rios Montt (RIO)	Military	Military coup	3/24/1982–8/8/1983	1.38
General Oscar Mejía Víctores (MEJ)	Military	Military coup	8/9/1983–1/15/1986	2.44
Marco Vinicio Cerezo Arévalo (CER)**	Civilian	Election	1/16/1986–12/31/1986	0.96

*Entered office on 7/2/1974
**Left office on 1/14/1991
Source: GSD.

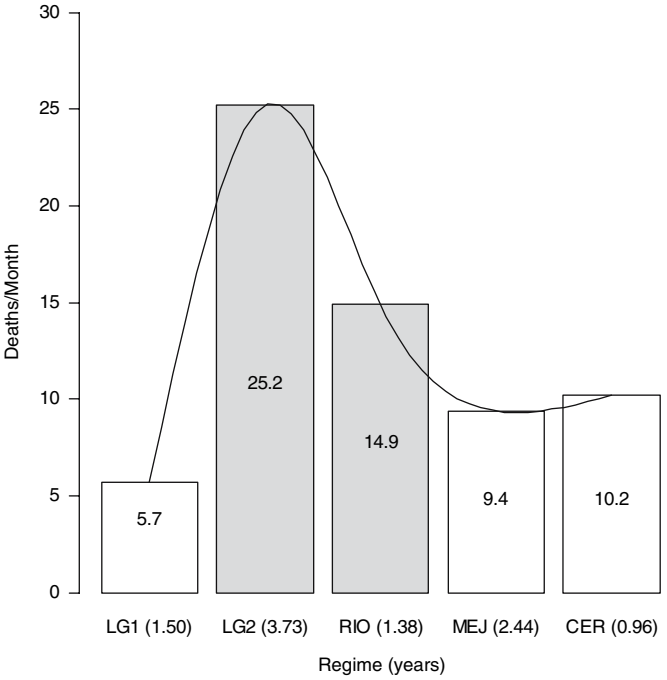

Fig. 5.6 VPAS deaths by register
Source: GSD

The strategy and tactics of the urban campaign were similar to those pursued by the Argentine Junta during its self-proclaimed "dirty war" against subversives, both real and perceived, during the 1970s. Since Argentine anti-subversive operatives came to Guatemala as advisors to the Lucas Garcia government as early as 1980 when the campaign began in earnest, the similarity is not likely to be coincidental (Feldman 1985).

The center of gravity of the urban campaign was the Department of Guatemala. Targeting not only guerillas but members of non-violent dissident movements, it took a heavy toll among intellectuals—lawyers, journalists, and other professionals. For example, although it was a government institution, the University of San Carlos (USAC), Guatemala's center of higher learning, was particularly hard-hit: from 1977 through 1986, 250 students, 89 professors, and 34 administrative employees were killed or disappeared (Kobrak, P. 1999).

Acts of State violence took several forms. Many were straightforward assassinations; in these, the selected target was simply gunned down at home, on the street, or at the place of work. In others, the victims were kidnapped and within a day or two their bodies—often showing signs of torture—were openly dumped in public places. For instance, many of the USAC victims, both students and faculty, were thrown from speeding automobiles in front of the main USAC administrative building. In such cases, the victims were often well-known critics of the government whose deaths were meant to give dramatic public warning that like behavior would

bring a similar fate. Since the bodies could be promptly claimed and buried by their families, these victims were not interred as *X.X.*s. In contrast, two other forms of violence, *armed confrontation* and *abduction*, may have resulted in many victims being buried as *X.X.*s in *La Verbena*.

Throughout the urban campaign, police or military security forces clashed frequently with guerillas. Such confrontations took place during guerilla attacks against government targets or during raids by security units against suspected guerilla hideouts. Most guerilla units operated as small, independent cells. Such groups avoided committing details of their membership to paper. Even under torture, survivors, if any, could not often identify dead comrades because most knew each other only by pseudonymous "war names." Thus, when a cell was wiped out, the identity of its members was also lost. In any case, security forces would find it advantageous to conceal the identities of the victims. Consequently, guerilla deaths were likely to be interred as *X.X.*s.

Abductions targeted individuals with known or suspected ties to the guerrillas in order to collect intelligence useful in counter-insurgency operations. They were carried out by specialized teams trained in techniques of clandestine kidnapping. The objective was to snare and subdue the victim quickly and silently. The normal routine of the selected target was established through several days or weeks of surveillance in order to determine the optimum time and place of abduction. The kidnapping was carried out by agents in civilian clothes driving unmarked vehicles. Success ensured the victim would be delivered alive to the detention center. Failures could be dangerous: if armed, the target might wound or kill his abductors; if he escaped, he could warn others in his circle that they were jeopardized.

Upon arrival at the detention center, abductees were interrogated under severe torture. The ultimate outcome varied. About 14 percent were "turned" for use as informants or for propaganda purposes. But, for most, their fate was sealed. Release was not an option because, once freed, they could negate any intelligence of value they had disclosed. Instead, they were killed. These victims, unlike those where the motive was to send a "message", could not be openly dumped in public places. To do so would signal their comrades still at large that they might be compromised by information divulged by the victim.

It was thus important to conceal the bodies. A few came to light weeks or months later in clandestine graves. For example, in early 1980 a gunfight broke out between police and marchers in a funeral procession for victims of the Spanish Embassy massacre.[6] Police detained several mourners, including USAC student Liliana Negreros. Six weeks later, Liliana's body was found among 17 others in a mass grave near San Juan Comalapa.

But another way to "conceal" the body would be to strip it of any means of identification and deposit it quietly in some out of the way place in or near Guatemala City. When found, it would be sent to the judicial morgue and thence to *La Verbena* as an

[6] On January 31, 1980, police stormed the embassy after it had been taken over by armed protesters. In the ensuing gun battle, a fire broke out and police blocked firefighters from entering. Thirty-seven peopled died, including the embassy personnel held hostage, as well as all of the hostage-takers.

X.X. If this method of disposal were followed in Guatemala, it might account for the fact that after nearly 30 years, the bodies of hundreds of urban *deaparecidos* have never been found. It is interesting that a similar pattern was followed in Argentina where close to 80 percent of the *desaparecidos* have been found in unmarked graves in municipal cemeteries.

In short, we hypothesize that there were two paths followed by *desaparecidos* to their *X.X* graves in *La Verbena*: first, as victims killed in armed confrontations or, second, as extra-judicially executed abductees (Fig 5.7). Some data from the *X.X*. series supports this hypothesis.

Normally, in armed confrontations where firearms are used and the rules of conventional warfare are followed, only 20 percent of bullet wounds prove instantly fatal. This is because the most vital parts of the human body such as the heart, great vessels, and brain present relatively small targets. For example, the head constitutes only about 12 percent of the target area of a human body. Combatants wounded in other body regions, although they may die later, can be expected to survive long enough to receive medical treatment if it is promptly available. So constant is this one-in-five ratio of killed-in-action (KIA) to wounded-in-action (WIA) that when it is significantly exceeded, one may suspect the rules of warfare were violated by "finishing off" the wounded. Most commonly, this is done by gunshot wounds to the head. That this practice was followed by Guatemalan counter-insurgency units is indicated by the statistically significant increase in gunshot wounds to the head among VPAS *X.X*.s during the ELEV period (Table 5.6).

Two decades ago, most firearm wounds in suicides and ordinary criminal homicides in Guatemala were inflicted by handguns—usually revolvers. Automatic rapid-fire weapons were standard weapons of the military. They were also issued

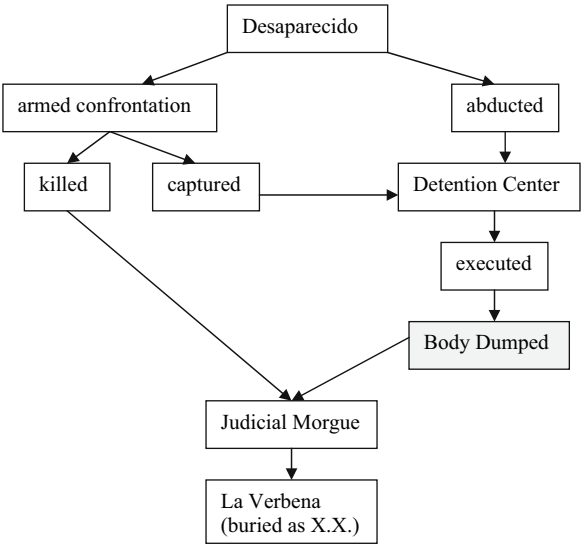

Fig. 5.7 Flowchart depicting possible disposal of *desaparecidos* as *X.X*.s

to special anti-subversive squads of the police. Due to their high rate of fire, they can deliver many projectiles into the target in a matter of seconds. Their use in armed confrontations with guerillas may account for the significant increase in multiple gunshot wounds observed in VPAS *X.X.*s during the ELEV period (Table 5.7).

5.5.4 The Beginning and End of the Urban Campaign

In our analysis, we defined the ELEV period on the basis of whether or not the number of VPAS burials that occurred during a given semester exceeded the 95 percent prediction limit of the regression line of the BASE period. Nine semesters met this strict criterion. Thus, the ELEV period began in 79.1, the second semester of the Lucas Garcia regime, and ended with 83.2, the last full semester that Rios Montt held power. It is unlikely, however, that the actual beginning and end of the urban campaign were precisely defined by these semesters.

Lucas Garcia took office on July 1, 1978. During the first 4 months of his tenure, *X.X.* burials remained low—averaging 6.5 per month. Then, in November, they more than doubled to 16 and continued to rise thereafter (Fig 5.8). Thus, it appears likely that the urban campaign began in earnest around this time.

The 4-month delay in putting the campaign in action was no doubt related to the fact that such an extensive effort required elaborate preparation. Key to its planning were the nearly 50 Argentine anti-subversive operatives who arrived in Guatemala as advisors a few weeks after Lucas Garcia took office (Feldman 1985). Fresh from their victory in their own self-styled "Dirty War" against the largely urban-base

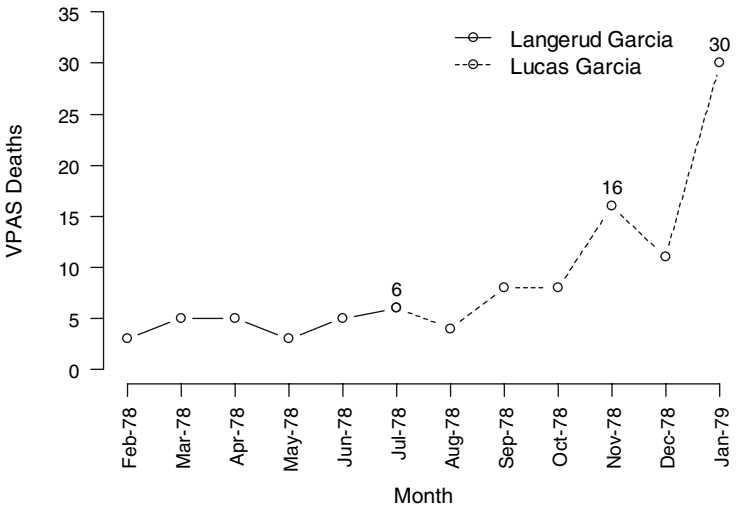

Fig. 5.8 Regime change and initiation of the urban campaign in november 1978
Source: GSD

Montoneros, they apparently played an important role in the Guatemalan urban campaign and, in many ways, the strategy and tactics of Argentine and Guatemalan operations were eerily similar.

General Mejia Victores overthrew Rios Montt in a coup d'état on August 8, 1983. Since he had served Rios Montt as defense minister, Mejía Victores bore heavy responsibility for the excesses committed by the military during the 17-month rural campaign. Once in power, however, he formed a predominately civilian government focused on institutional reform. Disappearances continued but at a much lower rate than during the regimes of Lucas Garcia and Rios Montt.

Perhaps the best indicator of the end of the most intense period of the urban campaign is provided by the monthly numbers of VPAS X.X. burials in La Verbena during the transition period between the two regimes (Fig 5.9). In the last 6 months of Rios Montt's rule, VPAS burials averaged 12.2 per month. When Mejía Victores took over, only two VPAS deaths occurred during the first month of his regime. This abrupt drop probably indicates that executions were put on hold while some changes in urban campaign operations were being considered. After this pause, they rose to 22 in September and 21 in October. In November, they again declined to an average of about 10 per month which was maintained throughout the remaining 2 years of his rule.

The steep rise in VPAS deaths during September and October may signify a "house cleaning" during the closeout of certain detention centers similar to those which occurred in Argentina in 1978 and in 1983 (Snow and Bihurriet 1983). The first was undertaken as an attempt to polish the Junta's tarnished international image before Argentina hosted the 1978 World Cup in soccer and the second when it became clear to the Junta leaders that they were about to lose power after their disastrous defeat in the Falklands War. In both instances, prisoners who had until

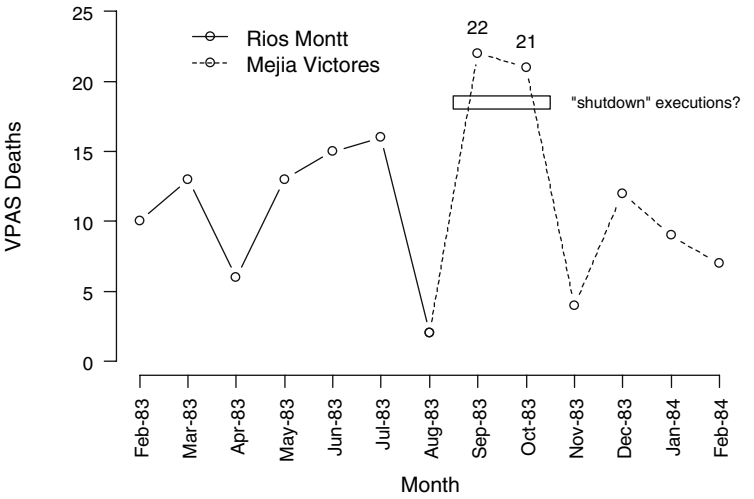

Fig. 5.9 Regime change and end of the urban campaign
Source: GSD

then been spared were finally executed—simply liberating them would prove too embarrassing for the government which had, over the years, officially and loudly denied ever having had them in custody.[7] It seems likely that the transient rise in VPAS deaths in Guatemala during the early months of the Mejía Victores regime also reflects the execution of prisoners still held in detention centers scheduled to be shutdown as the urban campaign was brought to a close.

5.5.5 X.X. Burials and Unidentified Victims

Beginning in 1994, the International Center for Human Rights Investigations (CIIDH) began a systematic compilation of human rights violations that occurred in Guatemala during the 36-year period (1960–1996) of civil conflict. This effort was headed by Patrick Ball, then-Deputy Director of the Science and Human Rights Program of the American Association for the Advancement of Science (AAAS). Building on data previously collected by Paul Yamauchi (1993) and 4,000 archival reports in the files of various Guatemalan human rights groups, Ball and his colleagues documented over 10,000 additional cases of killings and disappearances, most reported in the Guatemalan press. Since many cases—particularly the village massacres in the highlands—resulted in the death or disappearance of more than one person, the total number of victims was 37,255.

One complication of the analysis is the fact that, beginning in September 1980 and lasting through 1981, the Guatemalan press ceased reporting incidents of killings and disappearances. The Lucas Garcia government imposed this ban indirectly through its backers in the business community who threatened to withdraw advertising from newspapers reporting human rights violations. The message was reinforced by the deaths or disappearances of seven journalists during the 8 weeks

[7] The best-known incident of such a delayed execution is that of Dagmar Hagelin, a 17-year-old Swedish citizen who was mistakenly shot during a death squad operation on January 21, 1977. Seriously wounded, she was whisked away to the Navy Mechanics School (ESMA) which also served as a detention center. There she was hospitalized but her injuries left her partially paralyzed. Despite the fact that the incident, which occurred in mid-morning in a suburban neighborhood, was observed by several witnesses, Argentine officials, from President Videla on down, vehemently denied that it had taken place or that Dagmar was in custody. This position was held in face of persistent and energetic inquiries by the Swedish government and many international human rights organizations. Later, she was transferred to Villa Joyosa, another Navy detention center in the city of Mar de Plata where she was relatively well-treated and, although still wheel-chair bound, allowed to roam freely in the villa's wooded grounds. According to one witness, he saw her there in November, 1977—10 months after she had been shot. A Mar del Plata physician has stated that on an evening in June or July 1978 he was called to Villa Joyosa where he was required to sedate a number of prisoners, including a invalid young blonde who he believed was Dagmar. It is currently thought that the sedated prisoners, including Dagmar, were taken to sea and dropped overboard later that night. It is possible that Dagmar herself left a poignant clue to her incarceration in La Joyosa: when her father accompanied by Swedish journalists visited La Joyosa in 1984, they found a tree with the initials "DH" carved on the trunk (Simpson and Bennett 1985, p. 129).

immediately preceding the press blackout. Consequently, there is almost no data for the 16 months when the violence reached its peak.

During the period covered by this survey, contemporary press reports contain 531 incidents in which one or more unidentified victims were killed in the Department of Guatemala. The total number of unidentified killed (UIDK) was 723. The semester values of UIDK victims are plotted against VPAS deaths in Fig 5.10. As indicated by the *coefficient of determination* (r^2) they are significantly correlated at the 0.0001 probability level. The finding supports the hypothesis that many UIDK bodies were buried as *X.X.*s.

Granted that there is a correlation between the UIDK and the VPAS, it is next worth investigating the relationship between the UIDK and the *desaparecidos*. The CIIDH database lists 778 individuals as urban disappeared between 1977 and 1986. The semester values of these variables are plotted in Fig 5.11. The correlation is highly significant ($r^2 = 0.399$, $p = 0.007$). The outlying value represents semester 84.1 when only 12 unidentified but 110 disappearances were reported.

5.5.6 Desaparecido Burials in La Verbena

If an *X.X.* is eventually identified, his or her name is entered as an addendum on the burial certificate. Such cases are rare: of the 3,171 *X.X.*s of our series, only 127 (4.04 percent) were subsequently identified.

Among the identified are 11 individuals, all males, listed as *desaparecidos* (Table 5.9). Five died of gunshot wounds (GSW) to the head, four from cranial

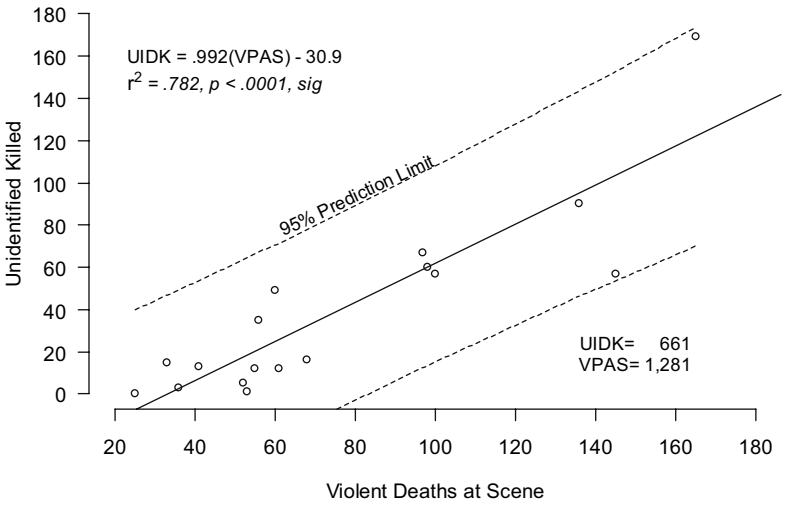

Fig. 5.10 Linear regression of unidentified killed (UIDK) on violent deaths pronounced at scene (VPAS)
Source: CIIDH Database (Ball and Spirer 2000)

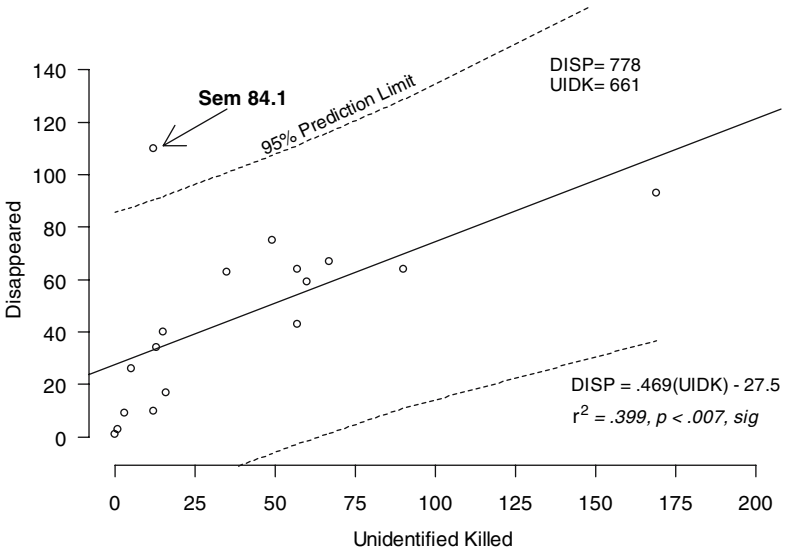

Fig. 5.11 Linear regression of disappeared (DISP) on unidentified killed
Source: CIIDH Database (Ball and Spirer 2000)

blunt force trauma (BFT), one from ligature strangulation, and one from multiple blast injuries received in a bomb explosion. Six cases occurred during the regime of Lucas Garcia and the remaining five during that of Mejía Victores. The bodies of all but one were claimed by their families and exhumed for reburial elsewhere. The burial records offer no clue as to how these bodies were identified or how their families became aware that they had been buried as *X.X.*s.

One of the eleven, Professor Jose Octavio Cajas Sola, was Chairman of the Epidemiology Department at the USAC Medical School and well-known in the relatively small Guatemalan medical community. It is possible that his body was recognized by the examining physician who took it on himself to notify the victim's family of his burial as an *X.X.*

Although their number is small, these victims provide strong *direct* evidence supporting the hypothesis that many of the disappeared were buried as *X.X.*s in *La Verbena*.

5.6 Summary

This study is based on a review of the burial records of *X.X.*s buried in *La Verbena* Cemetery between July 1, 1977 and December 31, 1986. Our findings show the following:

- Between January 1979 and August 1983 (ELEV period) the number of *X.X.* burials rose steeply above baseline values of around 100 per year.

Table 5.9 Disappeared persons buried in La Verbena as *X.X.*s and later identified

Name	Reported missing	Body location	Cause of death	Buried	Exhumed
Oscar Garcia Valazques	Mar-80	Km 28 Carretera A El Salvador	BFI, head	3/2/1980	unknown
Juan Lechuga Santos	Mar-80	6a calle la Av Zona 7 Via Publica	BFI, head	3/2/1980	unknown
Rolando Pinto Olivares	May-80	Residenciales Kananjuyu Zona 16	GSW, head	5/2/1980	10/24/1980
Horacio Mendizabal Garcia	Jan-81	2a. Calle 19-76 Zona 14	GNT, blast	7/26/1981	9/30/1981
Jose Octavio Cajas Sosa	Feb-82	Calz. San Juan 7-12 Zona 7	GSW, head	2/16/1982	4/23/1982
Pedro Sagastume Mendoza	Mar-83	Unknown	GSW, head	12/26/1982	2/3/1983
Lauro Marroquin Guzman	May-84	Calle Mariscal entre 9y10 ave Z. 1	BFI, Head	5/2/1984	Unknown
Baudilio Mendoza Lopez	May-84	Km 65 Ruta al Atlantico	GSW, head	6/17/1984	7/24/1984
Mario Martinez Velasquez	Jun-84	Km 65 Ruta al Atlantico	GSW, head	6/17/1984	6/27/1984
Nery Cardona Orantes	Jun-84	Km 65 Ruta al Atlantico	ASP, ligature	6/17/1984	6/27/1984
Jorge Quintanillas Rodas	Jul-84	5 Ave y 19 calle 19-74 Z. 5, Mixco	BFI, head	7/15/1984	Unknown

Source: GSD.

- The number of *X.X.*s who died of natural causes remained constant and did not contribute to the rise observed during the ELEV period.
- The number of victims who died violently but survived long enough to be pronounced dead at an emergency treatment center also remained constant throughout the study period.
- The increase in *X.X.* deaths during the 4.5 year ELEV was confined to victims who died violently and were pronounced dead at the scene (VPAS).
- This overall increase in VPAS deaths was made up of statistically significant increases in all forms of violence: gunshot wounds, asphyxiations, edged instruments, and generalized trauma.
- From the data, it is estimated that about 889 VPAS deaths in excess of those normally expected occurred during the ELEV period.
- The bodies of the VPAS victims exhibited a statistically significant increase in gunshot wounds to the head during the ELEV period.

- The number of VPAS cases exhibiting multiple traumata from gunshot wounds, asphyxiation, and edged instruments also increased significantly during the ELEV period.
- The number of bodies exhibiting postmortem mutilation rose significantly during the ELEV period.
- During the 3.73-year regime of General Lucas Garcia, VPAS deaths averaged 25.2 per month–a fivefold increase over that of his immediate predecessor. They remained significantly higher than normal during the 1.38-year rule of General Rios Montt.
- As indicated by the steep rise in VPAS deaths, the urban campaign started around November 1978—shortly after a team of Argentine "anti-subversive" operatives arrived in Guatemala to serve as advisors to the Lucas Garcia government.
- The urban campaign ended in the early months of the Mejía Victores. Its termination was marked by a transient rise in VPAS deaths as closing detention centers were "tidied up" by execution of prisoners still on hand.
- VPAS deaths are strongly and significantly correlated ($r^2 = 0.782$, $p < 0.0001$) with killings of persons listed as unidentified in the CIIDH database.
- The correlation between persons listed as disappeared and those listed as unidentified is significant ($r^2 = 0.399$, $p = 0.007$).
- The burial records show that in 11 cases, *X.X.*s were eventually identified as persons originally reported as *desaparecidos*.

5.7 Conclusions

Between 1979 and 1983 (ELEV period), about 889 VPAS victims in excess of the number normally expected were interred as *X.X.*s in *La Verbena*. The temporal distribution of these deaths is significantly correlated with the number of unidentified persons killed during the period of this study.

The number of VPAS victims displaying multiple traumata suggestive of torture and postmortem mutilation increased during the ELEV period as did those with gunshot wounds to the head—a frequent method of extra-judicial execution. Among the few cases of VPAS *X.X.*s subsequently identified were 12 of persons listed as *desaparecidos*.

The increase in VPAS deaths occurred during the intense campaign conducted against the urban guerillas and their sympathizers (real and perceived) during the successive regimes of Generals Lucas Garcia and Rios Montt.

Based on the above conclusions, FAFG has developed a project to exhume a selected series of *X.X.*burials from *La Verbena*, beginning in 2006. Its principal objective will be to determine whether the skeletal remains are sufficiently well preserved to yield DNA samples that can be used to establish positive identification. If so, a large-scale project to exhume all of the 1977–1986 *X.X.*s will be conducted.

While the urban campaign was centered in the Department of Guatemala, operations against individual guerillas and their cells were conducted in other departments as well. Many of these victims would have also been buried as unidentified bodies

in local municipal cemeteries in the departments where they were killed. Studies of the cemetery records in these departments should shed light on these cases as well.

It is hoped that, eventually, the mystery surrounding many of the urban *desaparecidos* can be at last resolved. The forensic evidence recovered in this effort will be collected, analyzed, and preserved as evidence in any judicial proceedings that may be brought against the perpetrators. Finally, the bones themselves will be returned to their families to be properly memorialized, thus ending their long years of hiding in plain sight.

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