



Operation *Just Cause*: A Case Study in Estimation of Casualties After War

Paul Wise, M.D.,* Nancy D. Arnison, J.D.,† Gregg Bloche, M.D., J.D.,‡
Jane G. Schaller, M.D.¶

In February 1990, six weeks after the U.S. invasion of Panama, a team from Physicians for Human Rights found that contrary to official government figures listing 201 Panamanian civilian deaths and 314 Panamanian military deaths, there was confirmed evidence of approximately 300 civilian and only 50 Panamanian military deaths resulting from the invasion and ensuing civil disorder. The team also evaluated the type and extent of injuries, and documented more than 3,000 wounded Panamanians. The methods used in compiling and assessing these data are described. The lack of reliable official data about the civilian casualties of this invasion underscores the need for independent nongovernmental organizations to conduct such inquiries and to develop appropriate methodologies. [PSRJ

1991;1:138-144]

0051-2438/1991/0103-0138\$03.00/0

© 1991 Physicians for Social Responsibility

*PW is staff physician, Joint Program in Neonatology, Department of Pediatrics, Harvard Medical School and Harvard School of Public Health, Boston, MA

†NDA is Program Director, Physicians for Human Rights, Somerville, MA. Address correspondence and reprint requests to Nancy D. Arnison, J.D., Physicians for Human Rights, 58 Day Street, Somerville, MA 02144

‡GB is Associate Professor of Law, Georgetown University Law Center, and Co-Director Georgetown-Johns Hopkins Joint Program in Law and Public Health, Washington, D.C.

¶JCS is David and Leona Carp Professor of Pediatrics and Chairman of the Department of Pediatrics, Tufts University School of Medicine, and Pediatrician in Chief, Floating Hospital for Infants and Children, New England Medical Center Hospitals, Boston, MA

On December 19, 1989 the United States invaded Panama and ousted General Manuel Noriega. Within the week, U.S. military officials heralded the invasion as a "surgical" strike [1]. The public, however, had little access to reliable information about civilian casualties. The press had been denied access to combat zones during the period of heaviest fighting on the night of December 19 and the early morning of December 20, 1989 [2]. The number of Panamanian deaths was a subject of considerable controversy. The Pentagon reported 314 Panamanian military deaths and 201 civilian deaths (the civilian toll was variously reported as

202 and 201) [3-5], while Panamanian citizens and the international press reported estimates as high as 4,000 civilian dead [6,7]. Deaths of 23 U.S. servicemen were reported [8].

Physicians for Human Rights/USA (PHR) sent a team of three physicians to Panama in early February 1990, six weeks after the invasion, to investigate the casualties of the conflict. This team (all coauthors of this article) issued a comprehensive report of the fact-finding mission in December, 1990. PHR is an independent, nonpartisan membership organization whose goal is to bring the skills of the medical profession to the protection of human rights. In the past four years it has undertaken 35 missions concerning 23 countries.

The PHR mission to Panama had three aims: to enumerate and classify Panamanian civilian and military deaths and injuries, to assess the psychological trauma experienced by those who suffered major personal losses, and to evaluate the care and support provided to displaced persons [9]. This article addresses the first of these objectives by setting forth the methods used to investigate casualties and by discussing the relevance of such an inquiry to the international laws of war.

During the week the team spent in Panama, the three physicians together and separately visited hospitals, morgues, and burial sites; reviewed emergency room logs, medical records, official lists of casualties, and lists provided by church and human rights groups; and interviewed government officials, military personnel, physicians, nurses, ambulance drivers, grave diggers, Red Cross representatives, relief workers, civilians, families, journalists, and church and human rights workers. The team cross-checked lists of information obtained from these sources and attempted to verify reports through corroborative testimony, physical evidence, and written documentation. One of the team members was fluent in Spanish, and the team also hired the full-time services of an interpreter for that week. (The psychiatrist member of the team returned to Panama for one week in March 1990 to conduct interviews unrelated to the subject of this report.)

ASSESSMENT OF DEATHS

Official Accounting of Civilian Deaths

Both the United States and Panamanian governments adopted the civilian death figures reported by

the Panamanian Legal Medicine Institute, or Instituto de Medicina Legal (IML). IML is under the jurisdiction of the Attorney General's office and is charged with the medical investigation, including autopsies, of suspicious deaths or cases of interest to law enforcement agencies. During the war, IML was officially responsible for investigating invasion-related deaths (civilian and military) for the Panamanian government.

IML staff reported to the PHR delegation that during the invasion and in the days immediately following, standard forensic procedures and provisions for autopsies proved inadequate. The staff gave as reasons for the failure, "the large number of bodies at the morgues" and the difficulty of moving about Panama City during the period of military conflict and ensuing civil violence. Few autopsies were conducted. Primary efforts of IML staff focused on creating individual files for all bodies of persons that they identified as having died from traumatic causes and that had been brought to the two municipal morgues at Santo Tomás Hospital and Social Security Hospital in Panama City. Each file contained an identification number; a photograph of the body; identifying information including clothing, jewelry, gender, apparent age, and whenever possible, name and military or civilian status; and the apparent cause and place of death.

U.S. military personnel collected some of the Panamanian dead. These bodies were taken to the U.S. Southern Command's Albrook and Howard military installations for processing and storage. When the number of bodies exceeded storage capacity at these facilities (capacity not known to PHR team), the Army buried Panamanian dead in a common grave (PHR interview with Admiral David Chandler, U.S. Southern Command, February 1990). The grave was located in the U.S.-controlled Corozal cemetery, directly adjacent to a large well-traveled highway. By the time of the PHR delegation's visit, bodies had been exhumed from this grave and reinterred at the Jardín de Paz, a burial site in Panama City under Panamanian authority. Prior to reburial, each body was given an identification number and photographed by IML personnel (PHR interview with Dr. Roger Montero, IML Director, February 1990). The IML, the U.S. military, and individuals who witnessed the transfer of corpses from the Corozal burial site to Jardín de Paz reported that 27 Panamanian dead had been buried at the Corozal cemetery.

The PHR team inspected the excavation site at the Corozal cemetery and found it to measure approximately 120 feet long by 20 feet wide. Although the size of the grave site alone cannot confirm the number of bodies buried there, these dimensions are not inconsistent with the burial of 27 bodies. Given the use of entry ramps and heavy machinery during excavation, the actual size of the trench used for burial was likely to have been approximately 100 by 10 feet. If one assumes approximately 3.5 feet by 8 feet per body, space for approximately 36 bodies would have been available. It is possible of course that bodies were piled together or the trench dug much larger than necessary. The depth of the burial trench is not known. Thus it would have been possible to bury more than or fewer than 27 bodies at the site. Nonetheless, the figure 27 is not inconsistent with the size of the trench and that figure was given by the three different sources noted above.

The official IML tabulation of deaths associated with the invasion included all non-U.S. citizens dying from traumatic causes in areas of combat during the period December 20, 1989, through January 15, 1990. The IML made no distinction between deaths directly attributable to military engagements and those associated with widespread street violence that followed. Classification of dead as military was based on the presence of a Panamanian Defense Forces uniform, identification tags, or information provided by inquiring family members. The IML classified all other deaths as civilian.

The IML tabulation of the dead listed 143 known civilians, 50 known military, 27 unidentified, 13 burned beyond recognition, and 18 under investigation. (This tabulation included the 27 bodies transferred from the Corozal cemetery to the Jardín de Paz.) All but the known military were ultimately listed as civilian dead. The resulting total of 201 civilian deaths was the figure also adopted by the U.S. Southern Command and has been quoted widely. The IML also listed 61 individuals reported by family members as "missing" at the time of the delegation's visit.

PHR Analysis of Official Figures on Civilian Deaths

The PHR team found that the U.S. and Panamanian official figure of 201 significantly underestimated the number of Panamanian civilian dead.

The team received reliable reports, as set forth below, of approximately 100 additional civilian deaths resulting from the invasion and ensuing violence that were not included in the official count (Table 1).

Hospital-based data represented an important source of information for the team. According to church and human rights workers and medical personnel, hospital emergency rooms were the primary sites to which the injured and dead were transported. Panama City's two municipal morgues are located at the two largest public hospitals in the city (Santo Tomás and Social Security). Other hospitals have only holding morgues.

Dead and wounded began arriving at hospital emergency units soon after the fighting began, in the early morning hours of December 20. Testimony of physicians and other staff portrayed a chaotic situation in which usual hospital procedures were overwhelmed. The two municipal morgues soon became depositories of large numbers of bodies, which quickly exceeded a total refrigerated storage capacity of approximately 50. In both facilities morgue personnel were forced to place two or three bodies in each of the refrigerated drawers, with additional bodies lined up on the floor of adjacent autopsy rooms. The logs and testimony of morgue officials generally were consistent with the numbers on the official IML list.

Much concern voiced by human rights groups regarding the accuracy of mortality figures centered on the reported use of common graves during the first few days of fighting. The PHR delegation confirmed by physical observation the use of common graves at three sites: the Jardín de Paz cemetery in Panama City, the U.S.-controlled Corozal cemetery in the former Canal Zone, and the Monte Esperanza cemetery outside Colón. The PHR team followed up, but was unable to corroborate, allegations that thousands of bodies were buried in mass graves.

Table 1. PHR's summary of verifiable Panamanian deaths

	Military	Civilian
	50	201 Official IML list
		38 Red Cross Colón
		43 Church, human rights lists
		16 Hospital lists
Total	50	298

The Jardín de Paz Cemetery. The primary burial site in Panama City for those on the IML list of deaths is the Jardín de Paz cemetery, a large, well-known burial site with ready access for visitation. According to witness testimony, international press photographs, and IML grave plot charts, a trench of about 6 feet in depth held corpses enclosed in military issue body bags. The corpses were placed side by side with approximately 1 foot spacing. Initially, two rows were created, but subsequent burials necessitated a third row. The length of these rows is not known to the PHR team. There were apparently three series of burials at this grave site, the first occurring on December 22, 1989. Numerous witnesses were present, and the international press published photographs of this burial. Two subsequent burials took place; the last, on December 29, included the exhumed bodies from the U.S.-controlled Corozal cemetery. At the time of the delegation's visit, this site remained unmarked except for small stones and flowers placed by family members of the deceased. The IML staff developed a grid map of the location and identification numbers of the deceased. According to IML officials, and independently corroborated by testimony of cemetery workers, 193 dead were buried at the Jardín de Paz site.

Records of Deaths in Colón. In Colón, a common grave in the Monte Esperanza cemetery held unclaimed bodies. The Panamanian Red Cross labeled these as civilians because of the absence of military attire. The Red Cross representatives and medical personnel at a Colón hospital said that this common burial became necessary when deaths during several days of fighting and looting overwhelmed refrigerated storage capacity at Colón's morgue (capacity not known to PHR team). These corpses were not photographed before burial.

Jorge Barnett, the medical director of the Panamanian Red Cross in Colón who supervised the collection of bodies, reported to PHR 62 civilian deaths in Colón (including 39 buried at the Monte Esperanza cemetery), 38 more than recorded for that area by the IML. Barnett informed the PHR team that he had reported these figures to the U.S. military authorities in a January 17, 1990 memorandum, a copy of which he released to PHR. During an interview with the PHR physicians on February 6, Dr. Roger Montero, the Panamanian official responsible for determining civilian casualty figures, stated

that he was not aware of the Colón deaths. Asked why these 38 had not been included in the official totals despite having been reported to the U.S. military, Admiral David Chandler, spokesman for the U.S. Southern Command, said that he knew nothing about these deaths but would look into the matter. A subsequent response to PHR from the State Department's Office of Panamanian Affairs dated March 6, 1990 stated that the majority of the Colón deaths resulted from causes such as traffic accidents and heart attacks, unrelated to the violence surrounding the invasion. Barnett, however, stated that all 62 Colón civilian deaths reported to the U.S. military resulted from wounds sustained between December 20 and 29, 1989. He indicated that 29 died of gunshot wounds, approximately 30 died from wounds inflicted by machetes and long knives (items reported commonly carried by looters), and three were crushed to death when a ship's cargo container fell on them during looting.

Other Sources of Documented Deaths. In addition to the Colón dead recorded by the Red Cross, the PHR team received reports from Catholic clergy, staff at several hospitals, and human rights workers of approximately 60 Panama City civilian dead whose names did not appear on the official lists.

The Catholic clergy's list, based on hospital, IML, and testimonial sources, reported 261 deaths: 184 identified and 30 unidentified in the Panama City area, and 27 identified and 20 unidentified from Colón. The human rights groups' lists contained 211 cases: 179 identified and 32 unidentified, from all areas. PHR's cross-checking of church and human rights groups' lists against the IML tabulations was possible only for identified individuals. This process revealed 43 identified civilian deaths that did not appear on the IML list. In addition, hospital officials reported 16 deaths of hospitalized patients whose wounds were inflicted during the period of fighting and whose names were not included on the IML list of dead. Comparisons between the identified names on the various mortality lists revealed that the official IML list documented fewer civilian deaths than any other tabulation. The delegation also received eyewitness accounts from church workers of 16 cremations that were unlikely to have been known to IML officials. These cremations reportedly occurred in the impoverished El Chorrillo neighborhood adjacent to Noriega's Panama City headquarters. As it was not possible to corroborate those

eyewitness accounts, the team did not add those cremation figures to the civilian death toll.

Thus, the PHR delegation found that there were approximately 100 additional verifiable civilian deaths in Colón and Panama City not represented on official lists. An attempt to reconcile the data from these different and overlapping sources revealed considerable internal consistency among and within the reports gathered by the team.

Of the known civilian dead, at least two were children and 16 were women. The two certain children are noted as "baby boy" followed by a surname. Since information regarding age was not systematically available, no accurate assessment of the actual number of children killed can be made. Fourteen of the women were listed as homemakers. The remaining two were killed at their places of employment; one was a baggage supervisor at the international airport and the other a receptionist at a Panama City Hotel.

Official efforts by the Panamanian government and U.S. military authorities to determine the invasion-related civilian death toll appear to have been inadequate. In interviews with the PHR team, IML authorities acknowledged that they did not follow up on allegations that uncounted bodies were interred in mass graves other than at the two official burial sites in Panama City and Colón. The PHR team found no evidence that Panamanian authorities interviewed hospital staff, church workers, or others who might have had information about deaths not included in the official count. U.S. officials indicated that they considered counting the civilian dead to be a Panamanian responsibility and therefore did not make independent efforts to determine the toll (PHR interview with Ambassador Deane Hinton, February 6, 1990).

Panamanian Military Deaths

The U.S. Southern Command stated that Panamanian military deaths totaled 314. According to Southern Command officials, this total was based on field reports by U.S. military personnel of observed, but not confirmed, "enemy kills," supplemented by the number of body bags requested by U.S. personnel and analysis of transportation needed for those killed in battle.

IML, on the other hand, documented that only 50 known Panamanian military bodies were found

Under the official IML classification system, all those who were not identifiable as military were labeled as civilians; therefore it is possible that some of the listed civilians were actually military or combatants in civilian clothing. It is also possible that some military personnel were among the 40 unidentified and burned bodies listed by the IML.

Nevertheless, even allowing for such potential additions to the IML count, the discrepancy between the Southern Command figure of 314 and the IML figure of 50 confirmed military deaths is substantial and raises questions about the accuracy of official accounting methods. When presented with PHR's findings, U.S. officials acknowledged that their official count of 314 military dead was based on "soft" battlefield reports and that the figure of 50 was more accurate [8].

Ratio of Civilian to Military Deaths

The official U.S. figures of Panamanian deaths (201 civilian and 314 military) reveal a ratio of approximately two civilian deaths to three military deaths. A revised ratio that uses PHR's conservative findings of approximately 300 civilian and 50 Panamanian military deaths reveals approximately six civilian deaths to every one military death. According to these findings, approximately 85% of the Panamanian lives lost during the invasion and its violent aftermath were civilian.

ASSESSMENT OF INJURIES

Neither Panamanian nor U.S. authorities conducted a systematic accounting of the number of people injured during the invasion and its violent aftermath. The United States government estimated 1,508 injured Panamanians [5]; however, PHR's interviews with medical staff and examinations of records at five hospitals and several health clinics in Panama City revealed that at least 3,000 Panamanians sought hospital care for injuries sustained during the first week after the invasion (Table 2).

The Santo Tomás Hospital treated the greatest number of injured, totaling 1,884. Most of these injuries were not life-threatening and were treated in the outpatient area set aside for emergency treatment of ambulatory wounded. Emergency room logs show that during the first two days of fighting the majority of serious injuries were due to gunfire,

Table 2. PHR's summary of injured treated at Panamanian hospitals

Hospital	Number treated	Hospitalized
Santo Tomás	1,884	179
Social Security	412	98
Gorgas	318	49
Children's	24	4
San Fernando	175	27
Other health facilities	200	
Total	3,013	357

burns, and shrapnel. However, by the third day the predominant injuries were lacerations from glass and debris and from stabbings, although bullet wounds remained common. One hundred seventy-nine of the injured seen at Santo Tomás were hospitalized; the rest were treated and released. Emergency room logs indicate that the Social Security Hospital treated 412 injured during the first week of the invasion. The pattern of injuries was similar to that of Santo Tomás Hospital, with wounds from bullets and explosives occurring early on. Ninety-eight of the wounded were admitted to the hospital for treatment. At least two patients remained in the hospital at the time of the delegation's visit some five weeks after admission.

The Children's Hospital reported treating 24 children with significant injuries. Four were admitted suffering from bullet or shrapnel wounds: a 5-year-old had been shot in the head, a 4-year-old had lost sight in one eye from grenade fragments, a youth of 14 had been shot in the leg, and a 13-year-old had received a bullet wound to the abdomen. The San Fernando Hospital, a large private facility in Panama City, treated approximately 175 injured patients and admitted 27 during the first week after the invasion. Gorgas Hospital treated 318 and admitted 49. Other health facilities reported treating a total of 200 injured patients.

The figure of 3,000 injured represents only those who presented to hospitals and clinics during the first week after the invasion. Given the difficulty of travel during that period and the reports that many injured people sought aid within their own families and communities, 3,000 is likely to represent only a partial count.

THE RULE OF PROPORTIONALITY

Fundamental principles of the laws of war maintain that civilians shall not be the object of attack, and that harm to noncombatants must be minimized [10]. Protocol I to the Geneva Conventions specifies that belligerents should avoid locating military objectives within densely populated areas [11] and must distinguish between military and civilian objects, directing their attacks only against military targets [12]. Nonetheless, injury to civilians is likely to occur; thus, the rule of proportionality found in Protocol I and in customary international law prohibits attacks against military objectives when injury to civilians is likely to be excessive in relation to the anticipated military gain [10,13]. The United States and Panama have signed, but not ratified, Protocol I; nonetheless, the provisions in Protocol I that relate to proportionality and the distinction between military and civilian objects give explicit content to principles already found in the laws of war and are thus considered to be customary international law, binding on all states [14].

Assessing compliance with these principles is difficult. The principle of proportionality, for example, has been criticized as "call[ing] for comparing two things for which there is no standard of comparison. Is one, for example, compelled to think in terms of a certain number of casualties as justified in the gaining of a specified number of yards? Such precise relationships are so far removed from reality as to be unthinkable . . ." [15]. During the Panama invasion and its violent aftermath, more than 85% of the lives lost were civilian, and throughout the 1980s at least 75% of war-related deaths were civilian [16,17]. Although these percentages alone arguably reflect disproportionate suffering for civilians (harm to civilians also includes psychological trauma, destruction of homes, displacement of communities, and disabling wounds [9]), a comprehensive analysis of a state's compliance with the rule of proportionality also requires examination of the specific facts surrounding the conflict [14].

It is important to examine whether the military commander ordering the attack took appropriate precautions and whether he knew or should have anticipated that destruction of the military objective would likely cause civilian suffering out of proportion to the military advantage gained [14,18]. Such an inquiry examines the information available to the

commander at the time of the attack. Practical problems for civilians investigating these matters include lack of access to military information such as the type and importance of the target and defensive systems surrounding it. Full fact-finding inquiries, therefore, should be conducted by entities with the authority to obtain complete information.

Civilian health professionals can serve the important function of documenting the nature and extent of casualties. If the principle of proportionality is to have any meaning at all, an accurate accounting of casualties is essential. Independent nongovernmental organizations can use the skills of medical professionals to enumerate and classify deaths and injuries. While governments should be responsible for the careful and accurate accounting of civilian and military casualties, the Panama case points out that official figures may not always be reliable. Independent organizations can perform an important monitoring role.

Even where it is not possible to draw conclusive judgments as to whether the principle of proportionality has been violated, the accurate documentation of numbers of dead and wounded is in itself an important contribution. The public has a right and an obligation to know the human costs of any armed conflict undertaken by its government. ■

ACKNOWLEDGMENTS

Support for the PUR mission to Panama was provided by the John Merck Fund, the J. Roderick MacArthur and Aaron Diamond Foundations, and the Fund for Free Expression.

REFERENCES

1. Bennett P, Robinson W. U.S. steps up drive to gain control of Noriega. *The Boston Globe*, December 26, 1989; 1, 19.
2. Merida K. The Panama press pool fiasco. *Washington Post*, January 7, 1989; B2.
3. Omang J, Priest D. Accounting for Panama's dead: uncertainty and confusion. *Washington Post*, January 7, 1990; A23.
4. United Press International. U.S. lowers estimate of civilian casualties to 202, plans to release 100 POWs. *Los Angeles Times*, January 13, 1990; 7A (col 1).
5. Jell D. Panama's civilian toll put too low. *Los Angeles Times*, March 15, 1990; A20.
6. Croft A. Lawyer alleges conspiracy of silence over Panama death toll. *Reuters*, NEWS news service, January 7, 1990.
7. Clark R. Report of independent commission of inquiry on the U.S. invasion of Panama. New York City: Independent Commission of Inquiry, February 8, 1990:4.
8. Jell D. Panama's troop toll cut: 314 to 50. *Los Angeles Times*, March 27, 1990; 13.
9. *Operation Just Cause: the human cost of military action in Panama*. Boston, MA: Physicians for Human Rights, 1991.
10. Solf WA, Grandison WG. International humanitarian law applicable in armed conflict. *J Int Law Econ* 1975;10:567, 583.
11. Protocol Additional I to the Geneva Conventions of 1949 (1977), article 58(b). U.N. document A/32/144/Annex II.
12. Protocol Additional I to the Geneva Conventions of 1949 (1977), article 48. U.N. document A/32/144/Annex II.
13. Protocol Additional I to the Geneva Conventions of 1949 (1977), articles 51(5)b, 57(2)a, 85(3)b. U.N. document A/32/144/Annex II.
14. Weissbrodt D. The right to life during armed conflict. *Harv Int'l Law J* 1988;29(1):70-83.
15. Baxter RR. Criteria of the prohibitions of weapons in international law. *Festschrift für U. Scheuner*, 1973;46,48,49. Cited by Cassese A. Means of warfare: the traditional and the new law. In: Cassese A, ed: *The new humanitarian law of armed conflict*. Vol. 1. Naples, Italy: Editoriale Scientifica, 1979:164-165.
16. Sivard RL. World military and social expenditures 1989. Washington, DC: World Priorities, 1989:23.
17. Sivard RL. World military and social expenditures 1987-1988. Washington, DC: World Priorities, 1987:28.
18. Cassese A. Means of warfare: the traditional and the new law. In: Cassese A, ed: *The new humanitarian law of armed conflict*. Vol. 1. Naples, Italy: Editoriale Scientifica, 1979:175, 176.