

## Iraqi Civilian Deaths

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[http://silencedmajority.blogs.com/silenced\\_majority\\_portal/2005/11/iraqi\\_civilian\\_.html#comments](http://silencedmajority.blogs.com/silenced_majority_portal/2005/11/iraqi_civilian_.html#comments)

(0:30) Thanks a lot, Steve. You know, I must confess I've only been here once before, and that was in the summer. So walking around on a sixty-degree day in Minnesota is- is a little bit unnerving because back in the East, we think of you guys as sort of tough and with really tough winters and that around mid-September, winter enthusiasts start riding their snowmobiles out on the thin ice and crashing through. And I would really be disillusioned with Minnesota public radio except for the local news this morning started out listing out all the fatalities related to deer hunting yesterday, so I guess that frontier spirit is really here.

(1:05) When Miriam asked me to come, she said, "We're a bunch of demographers, and we'd like to talk maybe about the dramatic difference between the coverage of what you did in Congo versus the coverage of what you did in DR- in Iraq." So I'm actually going to spend just a couple minutes talking about DRC, and then maybe ten minutes or so talking about the study we did in Iraq, and most of the time talking about the press coverage, or lack of press coverage, and the mistakes that we made in terms of communicating that scientific information and either turning it into or not turning it into public health policy.

(1:44) Most of you know this already, but generally speaking, the death rate in sub-Saharan Africa is on the average about twice that we would see in Europe and North America. And in DRC, the Democratic Republic of the Congo that used to be Zaire, before the invasion of 1998, the crude mortality rate was about eighteen deaths per thousand people per year. You may recall there was a very nasty civil war in Rwanda in 1994. The people that conducted the genocide were driven out and mostly driven over into Zaire. Two years later, the new Rwandan government was kind of unhappy about having these genociders [sic] hanging out just across their border, so they went in after them and, in present, Mobutu's Zaire just crumbled in front of them, and before they knew it, they had taken over the whole country. And they had a bit of a falling out with the fellow Laurent Kabila that they had put in power. And two years after they had taken over the Congo, they literally marched out of Rwandan Uganda, turned around, the next day re-invaded to overthrow their own puppet or representative, depending on how you look at it.

(3:01) Eastern Congo is a really hard place to sample because a) there's virtually no good population data, and b) the populations are spread out over quite vast areas. I can't ever remember being anywhere in the third world that had so much arable land that was sort of under-employed, and so the problems of sampling in this sort of area where you only have crude numbers of how many people are out there based exclusively on how many children there are under five that needed to be vaccinated. There hasn't been a census since 1992, I think. It just makes it very, very tough, and so we did a series of mortality surveys in 2000 and we would go to places, and I'll explain this in much more detail in the Iraq area, but we would within a city assign clusters to neighborhoods proportional to population, go to those neighborhoods, and visit ten houses at a point picked at random. And we did this so that we had thirty clusters of ten houses from five different areas, and then we did something that scientifically I hope will make you cringe. We said, "Well you now, we went to this one area in Orientale province, and so our best guess is probably Orientale presence is like that. And we went to these three places in the Kivus, and we think the Kivus probably are on average like that. And we went to this one place in Katanga province, and so we think the areas controlled by the rebels are like that." And we came up with an estimate: 1.7 million dead. Realize we did not sample; we did a robust sample of about five areas containing about a million people, and we extrapolated our conclusions out to about seventeen million people. That's kind of bad science, but you know, I and my interviewers were sort of opposed to

being killed. It's the middle of a raging war--it's the most deadly war anywhere in the world since World War II--and it seemed sort of prudent. The next year, we went back, and we sort of repeated that same process, going to six places, three of them old, three of them new, again extrapolating from the areas we visited out to areas we thought were similar. In one area, the rebels had lost control of part of Katanga province, so we said, "Well we think maybe in that area, the death rate is halfway between the baseline and where we measured up in northern Kantaga. And we came to the conclusion that 2.5 million people were dead.

(5:35) The most important thing about these studies in my mind was that violence was only a small part of the excess death profile: malaria and diarrhea were the main killers, and the evidence was pretty overwhelming. Even though we did extrapolate, and that's uncool, in those areas we went, so eleven in 2000 and 2002, the evidence was- had a lot of internal consistency to it. Here is what MSF, Doctors Without Borders, says when a hundred kids in a tropical country should look like under five years of age, in terms of age breakdown. There's a couple reasons why we should have more under-one-year-olds than we should have four-year-olds. One reason is that in eastern Congo for example, the population's growing at three percent per year, at least it was before the war, so you'd think that after five years, there'd be quite a few more people of reproductive age doing reproductive things. Secondly, little- the children who are youngest have the highest death rates. So if we want to have eighteen kids left at the end of five years, you've got to have eighteen plus a few born because it's the under-one-year-olds and the one-year-olds that die disproportionately. So typically we would see an under-five profile like this. Everywhere we went, in 2000 and 2001, in our surveys, there was a dearth of little kids compared to four- and five- year olds. That is not proof of anything, but it's very consistent that there was an extreme period of stress and perhaps mortality in this population. In fact, when we looked at the number of births and deaths in the seven out of eleven lowest mortality rates, so these are the best places, quite consistently, these populations that had been growing at three percent per year before the invasion are either not growing but actually shrinking now. And that's independent of people migrating in and out of the population because we're asking families what happened to them. We never confirmed these. All this data is based on the fam- the assumption that the family was telling us the truth. And this has been seen now in Mozambique and elsewhere: if we compare the various neighborho- the various areas that we surveyed, and these are areas surveying between six- sampling between 600,000 and 800,000 per study, there was quite a statistically significant trend where the areas with the highest violence rate had the most death from malaria and diarrhea as well. In fact, we would say our best guess is for every violent death that occurred somewhere, there would be an extra 1.8 or- yeah- other deaths from nonviolent things in those areas. So there's this correlation where violence is inducing death by malaria, it's inducing death by diarrhea, because when people flee their homes, and suddenly they're out in the bush, they're not eating well, it's raining at night and they're sleeping cold, they're getting bit by mosquitoes, and suddenly the same malaria that they would have survived before, manages to kill them when they're displaced. So we think the main mechanism by which violence induced death was displacement. Maybe and stress.

(8:58) In 2002, things had gotten a lot better. There was about a third of eastern Congo that we couldn't get to, but among the other places, this time we proportional to the size of the health zone picked ten health zones in the East, ten health zones in the west, and measured mortality. Now this is a sample. So the first two times, it's not a sample, it's a sample of a few areas extrapolating to seventeen million. This is a sample of fifteen million being extrapolated to twenty in the East and of twenty-five million in the West. And, lo and behold, in the East, where the war was, the mortality was markedly higher, both overall and under-five mortality. Interestingly, the birth rate was lower in the war-torn East, and the difference was almost completely explained by women reporting loss of pregnancies. And most of these losses were not in the first trimester; these were pregnancies that were

detectable by these women by physical size. So at the end of our 2002 survey, we estimated that 3.3 million had died.

(10:15) And what is most important now, moving to Iraq, is that, aside from the Minister of Health in Rwanda, there were [sic] virtually no skepticism about our results in DRC. It was covered, the first one, in the front page of the New York Times, the second survey on the front page of the Washington Post--they had a bit of a competition going there. And Tony Blair and Colin Powell cited our results repeatedly. Within a week of our first study coming out, the U.N. Security Council passed a resolution saying all foreign armies must get out of Congo. After the first studies came out in 2000, the U.S. upped its assistance to the East by twenty million dollars. So it really received almost no critical press and induced a lot of action. I don't know this but I'm told that we at least helped create an environment that put pressure on the various sides so that when Colin Powell eventually came into office, he could orchestrate the peace accord that had took [sic] place and more or less has held.

(11:27) In Iraq, I was really concerned that when I read the newspapers, and listened to NPR, all I ever heard about was car bombs and shootings. And you know, in almost every war I have ever been in, women afraid to the clinic and hemorrhaging at home and diarrhea and malaria were the big killers. And I thought maybe we should go and figure out what are the overall effects of this invasion, since normally the indirect effects exceed the direct effects. That wasn't the case in Kosovo, it might not have been the case in Bosnia, it's less clear there, but every other war I've been in, and I guess I've been in eight other ones, but every other one, infectious diseases have ruled the- as the mechanism of death from war. So we wanted to know the total number of excess deaths from the conflict, that is comparing death rate before with death rate after, and determine what were the causes so that we could come up with some public health guidance to help respond.

(12:19) And so there is this standard approach that the U.S. government and the U.N. have been pushing through something called the SMART initiative for measuring mortality. And both the DRC surveys and this survey followed at least the first thr- well, first two steps of that. The first thing is, it turns out that if you want to measure literacy or most other health phenomena, even in a huge place like the United States, to go to thirty neighborhoods and visit thirty houses is generally about half as statistically strong as going to nine hundred houses picked at random. You only typically, at least in mortality, lose about half your statistical power by having thirty clusters of thirty instead of nine hundred individual houses sampled. And so we wanted thirty clusters, and so we assigned them according to 2002 information from the Ministry of Health, first to the provinces, so that they would get a certain number of clusters proportional to their population size, and then once a certain province got four clusters or two clusters, we would pick random numbers and assign them down to the village level. And though the word "village" might mean a rural area with people strewn all over, but nonetheless everyone was in an administrative district with a population estimate from 2002. We would assign a cluster to it, and when we got to that neighborhood, we would drive around quickly, and we sort of store the edges of the neighborhood or village in a GPS unit, and pick a point at random within that little map we had just drawn and allow the GPS unit to take us there. So normally when we picked a point, by picking numbers proportional to the length of the sides of the village, we were hundreds and hundreds of meters from where we'd end up interviewing, and the GPS unit would guide us and make the final selection without any sort of potential for bias or input from the people who were afraid to go down the street or who were wanting to go visit their aunt or anything like that. When the GPS unit brought us to a point, we visited the thirty houses closest to that point, and when we got to those houses, in each team we had a male and a female interviewer. We only asked a couple of questions. We asked, "Who lives here now? Who had [sic] lived here on the first of January 2002? And has anyone been pregnant in between, has anyone been born in between, has anyone died in between?" And to live

there now, you had to have been in the house, "sleeping under the same roof" was the language we used, for I think it was the last two months. To have been a death in the house, they had to have spent most of the last two months under that roof at the time they died. So if their son was a soldier and he was off in the military and died and he hadn't been sleeping there in the couple months before he died, that wasn't a death in the house. We were quite concerned that people would say, "Well, my cousin who lives down the street, yes, he's of my family, and he died." You know, we didn't want any sort of extended family bringing more numerator events to the denominator we were defining in that building. So we were extremely strict about that.

(15:50) There are several pre-serious problems with that, almost all of which mean our mortality estimate is an underestimate. For example, in the end--we didn't know this when we designed our study--the main mechanism of death were [sic] bombs. If a bomb fell on a house and five of seven were killed and two family members were living, and came into this house and we knocked on the door, and one of them came and said, "How many people live here?" And they said, "Oh, we are nine," "How many people lived here on the first of January 2001?" "Oh, we were seven." "Has anyone died?" "Yes, five members of my family died." "Were they sleeping under this roof for most of the two months before they died?" "No, they were in the house two blocks down." "Sorry, we don't include that." So there's a survivor bias potential in the way we have sampled. But at least it keeps us from being criticized from saying that people were including distant people and inflating our mortality rate.

(16:48) We had a whole bunch of--I don't know what you want to call them--tricks or motifs for getting the best information we could. Five of the six interviewers were physicians, so they always wore a lab coat with their Al-Mustansiriya id on them; that gave them a certain credibility when they knocked on the door. When this guy would knock on the door, Dr. Jamal, if a kid came to the door, he would always send the kid to the next house he was going to go to so that when someone knocked on the door, it would be a familiar face that they saw when they first opened it, so that it would be a little less surprising and shocking, and they'd be a little more likely to be interviewed. And also, then, if this kid came next door, he'd ask if it a man or a woman, so the person of the right gender to interview would walk up to the door. So they had a whole bunch of things like this that they did. The car would always go park in front of the elder of the neighborhood's house, and the driver of the car would always be schmoozing out on the street with the village elder to sort of look credible, and...

(17:50) So we now have this nice situation where, nice statistically, we're interviewing houses about fourteen months before the invasion, and eighteen months after. So if somehow our sample is biased, the true effect of the invasion shouldn't be so affected because in essence we're comparing every house to itself. Before the invasion versus after the invasion. And before the invasion, the crude mortality rate was about five, same as was seen in Syria and Jordan. And after, we estimated it to be about 12.3, if we include Fallujah. Before the invasion, people were mostly dying of the same thing people die of in Minnesota: heart attacks and chronic diseases and accidents and that sort of thing. Violence is only two percent of the death profile. After the invasion, not only was the overall death rate much higher, but most deaths were from violence, and then followed by accidents and heart attacks and strokes and chronic diseases and all those things that were killing them before. The big difference in the death profile is now violence has come from almost nothing to most deaths.

(19:09) In spite of what you might hear on the radio, "Well it's only three or four provinces where things are bad," we found mortality elevated almost everywhere except the Kurdish north. In those top four provinces or governates, the mortality was actually down, on the

net, in the Kurdish north, and there were, I think out of all of those four neighborhoods, four provinces, with seven or so clusters, I think there was only one violent death in the whole thing. So n- almost no violence, and no elevated mortality. And everywhere else, mortality was in one case the same, and everywhere else up. And there was violence in almost every province and in most of the individual clusters. And that table's in the Lancet study should you want it.

(20:00) When we looked at the death rates after, there was this one neighborhood here, Fallujah, that just doesn't quite belong with the others. And in terms of statistics, the idea of statistics is to try get people to use sort of rigorous rules, to define things in a way that their prejudices will be overcome. Well, in this case if we include Fallujah we're going to come to a radically different conclusion than if we don't, and we thought it was unwise, a little group of thirty houses in a city that only had 310,000 people to start assuming that this really represented 700,000 people like every other cluster is meant to. So, we said, "We don't think this is wrong. We've been watching on TV Fallujah being shelled like crazy in September last year. We just think statistically it kind of doesn't belong in with this other set of mortality results. So, we set it aside." And if we set it aside, we would come to the conclusion that our best guess was, in that 97 percent of Iraq represented by the other neighborhoods, there are about 98,000 deaths. Interestingly, in the press it was never sort of emphasized this way, but you know we're about 90 percent sure just from that - excluding Fallujah, forgetting Fallujah for a moment - that at least 44,000 had died as of a year ago when we did this study. Well, there's one complicating factor. The fact that there is now violence as the main cause of death which wasn't in the death profile before. Independent of the Fallujah business, we would assume our assumptions of normalcy probably might not apply, cause how can there now be a new main cause of death appearing in almost every cluster if the true number of dead was still really really low like 8,000 or 10,000 or 20,000. So just the fact that there is so much death and that's the main cause makes us believe that this can't be a normal distribution. And secondly there's the issue of Fallujah, and from that one cluster our best guess would be something like 200,000 more people died. Well, the Chairman of Bio-statistics at Hopkins read our paper in which we were gonna say, "We think about a 100,000 died and there's a broad distribution around it." He said, "Look, if you guys think that data is valid and you just don't know how to quantify it, it's very, very fair to say that this plus that mean at least a 100,000-ish have died. Maybe 300,000, but given this it can't only be 60,000 or 70,000. The chances of that are very, very, very low." So, that's how we wrote it up. We said, "We think the death toll is in the neighborhood of a 100,000 or far higher. We think the violence is now way up 58 fold increase. And most importantly in terms of public health guidance, families attributed explosive things that came out of the air that came from the coalition as the main mechanisms of death among those violent deaths." Well, we only had a couple of conclusions in our Lancet study. We said, "If the US is not doing body counts, how can it really be sure that under Article Four of the Geneva Conventions, they being the protectors of those they occupy - as is required." More important for me, as someone living in a democracy, if we don't collect some estimate of how many people died, how can at the end of this little preemptive war exercise can we ever have a serious debate of whether or not the benefits outweighed the detriments. If you don't have a look at the cost, how can you ever do a cost benefit analysis? And finally we said that these findings need to be either confirmed or refuted. It just made no sense that a couple of academics with 40,000 dollars could be the official record of how many people died in this preemptive war given how important the precedent of preemptive was for the world at the moment. We made some mistakes. You always make mistakes in studies. Ours have just been a little more described in the press than most of them.

(24:53) One was, when I went to Iraq, I wanted stratify out the North and essentially do a separate survey up there. I wanted to do 20 clusters up there, 20 clusters everywhere else

because the North wasn't controlled by Saddam, and the invasion didn't change their circumstances really. And my colleague Riyadh Lafta said, "No, no, no, no, we are one in Iraq. We are doing one sample. We are coming to one conclusion with one number. We're not going to be fueling this discussion." And you know at the moment when his country was ready to break apart and still might be I can't say that's the wrong decision. In terms of statistical confidence intervals, having seven clusters where the mortality went down mixed in with 26 where mortality went up contributed to that very broad estimate and statistically is a problem. Secondly, the day these guys were going to Fallujah - well I need to back up. In this sort of study you always go through some really appalling calculus, and we decided to save the most dangerous clusters for last. The logic being, if someone's going to get killed we might as well more or less be done and have most of the good from the effort to show for it so that death won't be in vain. And so we saved two clusters for last. The second to last was Sadr city and the last was the city of Fallujah. And so off - I went to the first eight neighborhoods with the teams, and then there was some unpleasant experience with the police so I just hid in the hotel room after that, and they finished up cause they knew how to find the random points and draw the maps and all that after my first eight rounds. And when they're done with the first 31, they don't wanna go to Sadr city. The guy, who you saw in the picture, is the only interviewer willing to go with my colleague Riyadh, and this is because he's 50 years old, he's lived in Baghdad his whole life, and he's never stepped in Sadr city. Sadr city, the place they used to call Chicago back in Saddam's time because it was so dangerous and full of criminals. And he thought, "You know, if I don't go now I'm never going to get there." So, they're really nervous about going, and they go and make their map, they pick their random point, they put it in GPS, they start driving there, and they're going through neighborhoods that has been just riddled by helicopter gun ships and there's explosive devices have been put on the road in big pits, and it's just a mess. And they're getting closer and closer and closer, and they turn the corner and there's their street completely unscathed. And they start knocking on doors, and people are just so happy to see them. They give them tea and cookies, and they're having a great time. They visit 30 houses and only one violent death, and that was criminal in nature anyways. So they come back really buoyed, "Ha, we went to Sadr city. It was - it was a cake walk. No problem, we're going to Fallujah tomorrow." And I said: "Riyadh, we have been to 32 of the 33 neighborhoods we've picked, and Fallujah is so bad that it can't change our story. We already have a very bad story to tell. Mortality's up 60-ish percent, and whatever this says, it won't be worth the risk." And he said, "No, no, no, I must go." And we went back and forth, and back and forth, and the gist of it was for him this was an issue of faith. God had picked those 33 random numbers. God had sent him to those neighborhoods and to in some way be worried about his security in a way that would interfere with the mandate given to him by God was something that he just couldn't conceive of and wouldn't hear of. So off they go, and that morning one of my colleagues from Hopkins was like, "Well, if they're going to go anyways. We might as well make them do two or three neighborhoods." And I wrote him back this email that said something to the effect of, and I think this literally is the quote, "Are you blanking crazy? I just tried to talk him out of it. No way." So, I didn't even say that to Riyadh when he went off. And in retrospect my colleague Gil Burnham was probably right. Once they had had their car searched three times, and gotten in there, and gone through that horrific risk of getting in - if they had picked two points at random and gone to two neighborhoods and found a quarter of them dead, you know, then we would've had quite a bit of confidence that at least that quarter of the population dead applied to the 300,000-ish population that had been in Fallujah. But now we're not even sure if we might have by chance hit a particularly bad neighborhood. It may be that Fallujah number only represents some couple tens of thousands dead. So, it probably was a mistake scientifically speaking. A lot of people have criticized us for doing a cluster survey in an area at war where bombs are the main mechanism of death because bombs kill in clusters, you sampled in clusters, the, as it's called, design effect or loss of statistical power is really dramatic in

that circumstance. And the people who make that criticism are absolutely right, but I never expected bombs to be a significant part of the death profile when I designed this study.

[30:09] And so the only reason you could know that is if you essentially agree with the results. If you don't agree with the results then, the design was just fine. If you do agree with the results, then we should have probably done either a lot more clusters to cut down on the dramatic variance between our few outliers, or maybe even sort of come up with a strategy so instead of grabbing 30 houses that was - were coterminous, we would grab 30 houses based on a grid over a much larger area to minimize the effects of one bomb that might have killed a bunch of people at once - or even multiple families at once. And finally, unfortunately the study came out just a week before the Presidential election, and just about a week after that Dan Rather fiasco over forged documents accusing President Bush for having skirted his responsibilities in the National Guard. And so I think the press was really timid. That was bad. And you always have one interview, when you come out with a big study that's the one that's important. You know normally it's the New York Times or National Public Radio but this time it turned out to be an AP interview from someone in London. The interview went on for 40 minutes. It was in my colleague Gil Burnham's office. He was there. I was there. The press guy from Hopkins was there. The interview was very pleasant, went on quite a while, seemed like it went just fine. There was one really awkward thing that happened. Towards the end, the woman said, "Were you guys opposed to the invasion of Iraq?" And I said, "This is Les speaking, this was a study about the occupation of Iraq and we all wanted the occupation to go well." And then Gil said, "This is what our institute does, blah, blah, blah, blah, blah." And so she said, "I'm sorry, I have to ask again." So, she asked again, and we both gave an answer again. And then she asked the third time, and you know they teach you in all those classes at CDC, don't ever answer a question that you don't want to answer. But I had an interview with the Wall Street Journal when the invasion took place that made it pretty darn clear that I was vehemently opposed to the NGO's coordinating with the US government, and so I thought that maybe she was even testing me. So what was the point in covering up what three minutes on Google could discover anyways? So I said: "This is Les speaking. Yeah, I was opposed to the invasion of Iraq." So at the end of this AP wire article - the way wire articles go is they sort of have the results up front and a couple contextual things on how they did it, what this means, maybe who, what a couple of people said in response, and then they'll start pasting on paragraphs you may or may not want to run in your paper. One of the paragraphs said something in the effect of, "Our methods were very robust, and I don't think our personal prejudices effected where we went." That was actually taken out from a part when we were discussing GPS units. And then there was another sentence that said the timing, "Sure we wanted this to come out before the elections to force the candidates to have to address the issue." Which is true, we would have liked the candidates to pledge to protect civilians. But that word "forced" sounds kind of OK, when I just say it right now, but when you see it in print that's a really bad word. And they had pasted together about four sentences, one of them being, "I was opposed to the invasion, and I'm really sorry to be reporting this." And that paragraph looked bad. It had a real activist edge to it, and that was a bad mistake - that was a bad mistake. Those press classes they teach you to be an android and just repeat the same message and sound really stupid - they know what they're talking about. So, out comes the article. It got front page coverage in La Monde, La Guardian, The Times of London, most every major European paper, most every paper in Middle East, most of papers in Asia. There was a whole series of in depth analysis done. The editor of the Lancet not only had to be on the news to describe the study, but two nights later he had to come back on to the BBC to tell the British people what a normal distribution was. And he was so chuffed about this. He thought this is exactly what science should be doing, like interfacing with society and... Three times in the week after the study come out, Tony Blair was forced to address the press about the results of the study.

(34:37) And Jack Straw wrote a five page response to our Lancet article, and my friends at the Lancet were just so cuffed about this. The idea of a British Foreign Secretary writing a response to a medical journal. That's as far as they knew, that was the first time. In the US, there was a - that wire service story on page A8 of the New York Times. The Washington Post did run their own story. They interviewed us, they called - they got a bunch of facts wrong. They called up a guy called Mark Garlasco from Human Rights Watch and said, "What do you think of a 100,000 dead from a study in Johns Hopkins?" And he said, "Well, you know, I haven't seen the report, I haven't read the report, but 100,000 sounds high to me." So they had this quote to the effect of, "100,000 sounds high to me." And because he had been the first person to dismiss our study, he was on CNN, he was on NBC. None of the authors ever were. And I got some coverage in sort of the liberal press and the highest profile thing was "Democracy Now." And the most important thing was the next day there were two spin articles written. They were respectful. They focused on the great imprecision, and they said, "You know, this proves we'll just never know." And this message, the results are so imprecise as to be meaningless, went through the blog mechanisms with lightning like speed. So this came out the Thursday before the Presidential election. A couple of people told me that their ministers from the pulpit that Sunday said, "This Lancet study is so imprecise as to be meaningless." I got a call from a reporter in Chicago on the Monday saying that they had just called a couple of right to life groups saying: "If you're so keen about life, how do you feel about a 100,000 dead Iraqis?" And one of them said, "Well, I heard that it might only be 8,000 anyways." And my next door neighbor, the day of the Presidential election, said to me that she'd been listening to talk radio that day and a shock jock had said that this Lancet study reporting 8,000 civilian deaths was flawed and wrong. And it just went out like lightning to all the right people. To all the right people. And we never said 8,000 or 194,000, that was part of the results, and when you took that plus the new violence plus Fallujah, we said it's got to be at least in the neighborhood of a 100,000. That's what we wrote, but that 8,000 or 194,000 is what appeared in US News and World Report and everywhere else. So, I realized that there are certain people who are gonna sort of come up with schemes about why things are done. This is actually sent to me by a Republican Senate staffer. And, you know, data is never going to convince a certain subset of the population that the most nefarious things aren't behind this war, and anything short of essentially everyone higher in the administration than the Minister of Toenail Clipping ending up in jail isn't sufficient for them. And on the other hand this is the front yard of one of my neighbors. And there is another set of people for whom no matter what facts are put in front of them, what ever our President has done is okay. They are just sort of going to blindly believe it. I accept that there's a big chunk of each of them on each end of the political spectrum on any given subject, no matter what it is. But I didn't expect this of the press. So here is data from the largest morgue in Baghdad showing a couple of months before the invasion and about a year and a half after the invasion. Unfortunately with morgues you don't really know exactly what the catchment area is serves them. And if that catchment are changes before and after an invasion for example. So, it's tough to translate this into a rate. But if we make some assumptions, given that in dark blue we have violent deaths, in sort of fuchsia we have all deaths, almost all of this increase is due to violence. And if you take that dramatic increase and extrapolate it out you'd come to the conclusions of about 500 violent deaths per day in Iraq. This is the most common source of evidence presented that civilians are being abused in the Middle Eastern press. The most common source are morgue data. I think this data is very skewed. I think this data is very skewed because violent deaths are far , far, far, far more likely than other deaths to end up in a morgue. And only a small fraction of all deaths end up in morgues. In fact, in Saddam's best of times only half of deaths were caught by his entire morgue plus hospital plus local official surveillance network. So, I think you've got a surveillance artifact here. We're looking at something that disproportionately finds violent deaths and it makes it look really bad. So this is reported in the Middle East. There are now 8 estimates out there, otherwise - actually

there is another one that I can't ever find a report for, so I don't want to include that said 128,000 deaths.

(39:50) And there at least these other seven estimates out there that allow you to calculate a rate of violent deaths per day in Iraq. And first of all, if this is 500 when extrapolated to the country, realize it's just like way out of touch with all the other estimates out there, so the Middle Eastern press is making it look a lot worse than it really is. If you read the New York Times, or if you even listen to Daniel Schorr on National Public Radio, there cite - citation of choice is the Iraqi Body Count mechanism which for about the first year just looked through the press and recorded deaths that were reported in two separate press sources. After about a year they started having people go to morgues and they had something a little more complete, but nonetheless it is a passive surveillance process and of course it grossly underestimates deaths. They admit it has to be an underestimate. There was a study done by some US military researchers about post-traumatic stress disorder. It came out in the New England Journal of Medicine and it is, 14 percent of Army soldiers returning and 28 percent of Marines returning, and these are just healthy guys not ill people, said they accidentally killed a civilian while in Iraq. They had been there six months on average; at that window there were 135,000 troops. You start taking that report and it comes up with an estimate even higher than our 100,000 estimate, and the fact that the Western press focuses on this and the Middle Eastern press is implying 500 violent deaths a day means that the press of the world, which should be sort of creating commonality among us and agreements about facts, is driving the world further and further apart. Interestingly, there are four of these - maybe not that one - at least three of them that tried to distinguish deaths from insurgents versus deaths from Coalition forces, and all of them are in agreement, as is a Reuters news article from September 2004, that the coalition killed, depending on who you believe, 3 to 5 times more people than have the insurgents. And that's pretty important, and if you listen to the National Public radio or read the New York Times you would never get that message. So there's a fellow named Patrick Ball who is out at Berkley and he has done some estimates of how many people have died in conflicts through capture-recapture. You look at a list, you look at another list, and you see how much overlap there is and calculate the co-correlations between them. He did this for the Peace and Reconciliation Commission in South Africa he also did this for the Peace and reconciliation Commission in Guatemala and he made this graph. This graph is showing, in the dotted line, the percent on our x1 axis of all violent political murders reported in the press, and on the black axis, going up to a peak of I think about 8,000 deaths per year, are the actual numbers of deaths. And what you'll notice is, in those times when violence is at its peak, the fraction reported in the press is really, really low. Most of us who work in war zones know this; if you don't have a nice hotel you really can't get the press out there to keep track of things cause the press, like so many other people, kind of adverse to getting killed. And it shouldn't surprise us that a press based surveillance network is an underestimate. What surprised a lot of people was, well how could it be four times too low? Or six times too low? And the answer is because most of the violence is happening way in the outskirts of the country and the press is all in Baghdad and embedded. So if we look on- at the Online Encyclopedia of Wars and Disasters and look at all those, sort of major wars that have killed more than- at least 200,000 people - probably killed more than 200,000 people since the Vietnam War, there's about a dozen. Only four of these have any estimate that was made by any epidemiological method while they were going on. That is to say, most of the time in big wars, the way we come up with a death toll is either the victors create a number when it's all over, or a couple of priests and a couple of reporters sit around with six bottles of whiskey in Southern Sudan on a slow night and they come up with a number, or some other method along those lines. And so we - I guess it shouldn't surprise us, if we in the public health world never go out and collect death data during times of war, that the press isn't very good at digesting it when we do, and when we put out numbers that aren't quite as ideal as they should be if it was a US census and the other

things they're used to reporting on.

(45:17) So I'm sort of out of time, but I'm just going to say, that you know, the press didn't really cover our death toll - there are lots of and lots of examples out there of the press really being embedded and skewed, and my favorite one today is from your paper today. And there's a headline here that says, "US Marines battle Al-Qaeda: Iraqi Civilians Flee." Battle Al-Qaeda - who's Al-Qaeda? Oh, those were the guys that did the 9-11 attack and were based in Afghanistan. So if you read through it, it says, "at least 36 insurgents have been killed since Saturday, 200 men have been detained", they say, "he did not give a breakdown of the nationalities of the detainees, many were expected to be from a pro-insurgent Iraqi tribe." Just in the last couple weeks, the Press has very effectively manipulated into using the word Al-Qaeda for what just four weeks ago they would have called an insurgent, and that is bad in a couple of ways. It's bad because we don't really know if those guys were Al-Qaeda and if some international was the fundamental motive for them wanting to battle the Americans or if they're Iraqi nationalists pissed off someone is occupying their country. And that sort of thing has arisen before, for example, I don't know how many of you remember that right around the time of the Presidential election the Pentagon spokesperson said again and again, "We think there are three to 5,000, mostly foreign combatants, left in Fallujah." They went in, a week after the Presidential election. They killed, depending on who you believe, 600 to 1600, and they captured 1600 prisoners. Of 1600 prisoners, 30 were identified as foreigners. So it went from most are foreigners, three to 5,000; they take a sample by capturing, of 1600, two percent are foreigners. In my time in Iraq people were convinced we were there - in my casual conversations so this isn't science, this is just me talking - for two reasons, oil and to create an environment of chaos so that the nefarious elements from all over the Muslim world who want to battle Americans would come there to battle them rather than come to North America. To consistently imply most of the insurgents in Fallujah are foreigners, or most of the insurgents up there in Anbar province are foreigners fuels this - this myth in Iraq that the Americans are there to bring in outsiders and to fight outsiders. So, to sum up, I think we probably would be better off - we would have been better off to report this as an outbreak. If we had said violence is up 58 fold and we're absolutely sure of this statistically,  $p$  less than one in 10 million, and that the Coalition is mostly responsible. If we had reported it like that, it wouldn't have been as spinnable as a number with a humongous confidence interval, or in our case, we can't even quite create a confidence interval because of that Fallujah outlier. Timing was - is outrageously important. I'm not sure of what else we could have done. If it had come out after the US election, my Iraqi colleagues would have been accused of covering up for the Americans and would've been killed. So you know - lose either way in this case. And when this came out, I didn't want to get involved in this blog game of responding, cause I - I argued to my co-authors, "Look we went to The Lancet with a really careful study, went through four rounds of peer review, every single sentence in there has been vetted and is carefully worded. You know and I know that if we get on to the blogs and start writing things we'll say things that are wrong, we'll say things that can be misinterpreted, and it'll only bring us down into the muck. Let's just forget that." That was a bad mistake. We should have developed a cadre of our peers who understand epidemiology well, give them the article in advance, let them get down in the muck with all these blogs when it happened. And for us to have allowed the Right Wing blog mechanism to sort of run wild with our study without responding was - was a bad mistake. So I'm sorry I've run so long, but there's certainly a bit of time for questions should you have any. Please -

(49:44 - 49:53) Audience Member: I think you had this up on the screen, but I didn't - I didn't catch it at the time. Did mortality from other causes go up in Iraq as well as violence?

LR: The answer is a bit. Yes, auto accidents being the main - the second most explanatory mechanism. People are driving like mani - well, not so much now - people were for that first

few driving like maniacs in the chaos of the cities. So auto-accident deaths went up markedly.

(50:10- 50:13) Audience Member: Nothing like what you saw elsewhere?

LR: Nothing like I saw elsewhere. I also didn't understand how wealthy these people were. And once the Food for Peace program got going a couple years before the invasion the hardships they went through went down. And there's a separate issue here that the demographers can probably tell you about which is, time and time again, after periods of extreme hardship you tend to see very low mortality. One of the lowest mortalities ever measured was in Germany right at the end of WWII because all the weak people had been culled out by all the hardship that they had just gone through. So, yeah, please

(50:49) Audience Member: Can you recommend to us how you would approach the press in the future if you know - yeah if either data or - or kind of your take on it you know. How would you approach the press with these studies in the future?

LR: Well, I think I tried to describe some them here. If I had a - you know, you write an article for The Lancet trying to get by a bunch of really stiffy statisticians who review for The Lancet. And when we did the Congo mortality studies our mechanism of press release was the media. The first study, we made a deal with the New York Times: you put it on the front page, we'll give you an exclusive. The second time around, a Washington Post guy went around with me, he put it on the front page, they got the exclusive. And we just put it up on the web, that 1.7 number and that 2.5 number, did not have a confidence interval. We did some sensitivity analysis to say best scenario, worst scenario in the text, but we didn't have a confidence interval, and Scott Zeger, Chairman of Bio-statistics at Hopkins, said the other day when talking about this study, "You know when I - we've done our work about smoking of late, we just haven't released our confidence interval either. It just confuses people, and especially people that are used to taking about political polls. For them, the confidence interval is everything, and it's really crisp and robust and it's consistent from time to time. For people talking about cancer deaths or deaths in a war, I mean these things are so imprecise, and the confidence intervals are so trivial compared to the non-sampling issues that it is - it's only inviting trouble to sort of focus on the confidence intervals as we allowed people to. So, yeah - also - yeah, I'll stop there.

(52:50 - 52:54) Audience Member: Two questions, did you write a - an executive summary of the study in addition to -

LR: Yes - yeah. We wrote a lay person's executive summary, yeah.

(52:59 - 53:05) Audience Member: And - and was that helpful? Are - would you have done it differently in terms of how much detail -

LR: No, no, we - that was done right, and that was sent out by the press office to everyone, but the issue was that AP wire service story set the tone. And that person, before they called us, before they wrote that story, was going to paint it as controversial. They found four sentences in 40-something minutes that could be pasted together to make it seem like, "Well, this is iffy," and there's nothing we could have done about that. Ah no, what i could have done is been more of an android and been more careful in my language.

(53:40 - 53:55) Audience Member: The second question is, you talked about the right wing blogs do you - do you know what was the response on the left-wing blogs and (unintelligible) people like Brad DeLong at Berkley or Joshua (unintelligible) that they tend to focus more on understanding the data in my experience.

LR: Yeah, there have been lots and lots of blogs that have responded to this, and there's - and it's very flattering to go through and see how sophisticated people's analysis of our data is. Yeah there's been tons, but that didn't stop that initial three days of getting the right message to the right people, and the right people were ministers and spokespeople for - for anti-abortion groups, and they were brilliant. And I should say that, I don't want to be very Oliver Stone-esque about this, but at the same time, the Bush Administration was brilliant in their spinning of it. George Bush has never been asked by a member of the press, here we are a year on, he's never been asked how many civilians have died and what have you done to figure it out. And when I worked at the CDC in the first Bush and Clinton Administration, the press office thought their job was to get interested members of the press to talk to these nerdy scientists and get information about what they're doing out. They only saw their job as getting what's in the bowels of the CDC out for public dissemination. After the Anthrax fiasco, Tommy Thompson sent a bunch of his guys to run the press office at the CDC. So this study came out on a Thursday; it hit the wires probably noon. Two reporters said to me they called the Centers for Disease Control that afternoon and said, "We'd like someone there at our national resource on epidemiology to comment on this Lancet study." And they said, "Well, no one here can comment on it, but there's some - a statistician at Harvard who's familiar with the work and will comment." Well that statistician at Harvard? He was actually at the American Enterprise Institute, and he was a signatory of the Project for the New American Century. And in my day at the CDC, no way could they be organized enough to within a couple of hours find just the right person to deflect an inquiry to, and there's lots of examples like that. But the dovetailing of the informal and governmental responses were brilliant. Brilliant. Yeah, please.

(56:11 - 56:28) Audience Member: How - how is The Lancet feeling about all this in retrospect - because I know they took a big hit for, you know, rushing this to publication and they took a big hit for - for not being a - a very objective journal anymore at least in - in the US.

LR: That's right, that's right. They did take a big hit. They're owned by an American company - that doesn't help either. And a couple months afterwards when I had an email exchange with the editor, not the Chief Editor Richard Horton, but the guy I had been dealing with; he said we would do it all again. I think that - no, Richard Horton has said not to me, but I've heard him say in public regarding the study, "Our job is to get science into the function of society and that this was a great example." And, also, the whole scientific community completely backed them up. I mean there are very few credible scientists who say, "Oh the statistics were wrong or..." It went through four brutal rounds of review. I have published an odds-ratio in The Lancet from a cluster survey and it never occurred to me how I would measure - how would I allow the design effect to alter the confidence interval on a relative risk in a perspective study. When they, in the third round, asked us to do that, not only did I not know how to do it, but when I called up all my old buddies at the CDC, they said, "I don't know how in a cluster survey to put a design effect in the confidence interval around relative risk." They didn't know either, and they didn't know of any software to do it. So I had to go to the Chairman of Bio-statistics at Hopkins and they did some linear modeling and they did it, but they bailed us out at the last minute. And it was put through a brutal review process, and there are many faults with this study. There are many, many. But I think that they're kind of laid out in the discussion section and so people - people can only focus on the timing and we asked them back in early September, "Would you be willing to - to put this through expedited review?" And it - it was in by September 30th, and it didn't go through any faster an expedited review than most expedited reviews, and it was our pushing not theirs if anyone's to fault. Yeah -

(58:40 - 58:42) Audience Member: Do you have any plans for a follow-up study?

LR: You know in the rec- first of all, i wouldn't be married if i went back again. So not me right now. In our recommendations we said it's really important that someone go out and confirm this with a little bit more precise study, and it's just shocking to me that a year on, no one's gone and done better. Given that it won't happen - yeah, there are a couple groups talking about it. So we'll see, we'll see. I won't go, but, yeah, it might happen.

(59:13 - 59:29) Audience Member: I have a question about fieldwork, I wonder how you interrelate with the local authorities? In my experience, is that their cooperation can be vital when you go out.

LR: Absolutely.