

## Putting medical risks into perspective



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A patient who was interested in changing contraceptive methods presented to my clinic a couple of months ago. She was on oral contraceptives but frequently forgot to take them, so she was interested in something else. She hated injections and was averse to having somebody place a foreign object in her arm. She was very much interested in long-term contraception but did not want permanent sterilization. “How about an intrauterine device (IUD)?” I asked. “What are the risks associated with this, doctor?” I explained that the risks were minimal; the worst-case scenario was perforation of the uterus with migration of the IUD into the abdominal cavity, requiring laparoscopic surgery for removal. There was an even smaller risk that laparoscopic surgery would be unsuccessful and that she would require a laparotomy, but I again emphasized that all this was extremely rare. She turned skeptical. “Rare? How rare?” I answered, “Only one in a 1000.” My heart dropped as I could sense that her interest was waning. She hesitated, and finally decided she would just stick to the oral contraceptives.

I have encountered this scenario one too many times. Based on the medical experience I

have gained through my training and practice, I know the risks of perforation during IUD placement are extremely low, much lower than the risk of an unwanted pregnancy on oral contraceptives. But how could I have conveyed these experiences to that patient, especially with the time constraints of a contraceptive counseling visit? How could I have communicated to the patient that the placement of an IUD is very easy and safe, when she herself had never even seen how it was done?

In 1997, the NIH Consensus Panel on breast cancer screening stated that “...a woman should have access to the best possible information in an understandable and usable form” [1]. The keywords here are “understandable and usable”. Is the rate one in a 1000 really understandable to a population where at least 25% of the people are illiterate [2]? In addition, is this number really usable for anybody if not put into a context of daily experiences? The only person for whom this number is usable, in my opinion, is the gynecologist, somebody who experiences IUD placement on an almost daily basis. For the rest of the population one in a 1000 might as well be one in a 100 or one in 10,000.



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Which brings me back to my point, how can we put these numbers into context for our patients? In 1987, Wilson and Crouch proposed a comparison of medical risks with nonmedical risks (i.e., risk of being involved in a car accident) in order to aid a patient’s interpretation of these risks [3]. He argued that patients may understand these risks more intuitively and therefore be able to process the numbers better. Given the fact that a patient’s assessment of risk is usually determined by emotions rather than facts, incorporating the emotions regarding daily risks may be used as a benchmark to understand the risks associated with medical decisions [4].

After that patient visit, I ran to the literature and tried to search for a resource that would put these medical risks into perspective for my patients. I returned empty handed. So, I embarked on a mission of my own. After much tedious work, I finally came up with a list of statistics from well-reputed sources (National Security Council and the Department of

Justice) regarding nonmedical risks that we in the USA encounter on a daily basis. I then combined them with medical risks on which I frequently counsel my patients and began compiling a table. Finally, as many studies have shown that patients prefer risks depicted as rates (defined as event per unit of population, commonly 100 or 1000) versus proportion (defined as one in the numerator and a shifting denominator) [5], I converted the numbers to rates (Table 1).

Over the past couple of months, I have used this table as a counseling tool with my patients and am pleased with the results. Patients are at ease when they understand that most of the risks that I refer to as ‘low risks’ are in fact less frequent than the risks they are willing to take on a daily basis. Given this positive feedback, I am sharing this tool and hope that other medical professionals have the same results with their patients as I have had with mine. Perhaps, had I told my patient that the risk of uterine

Table 1. Nonmedical and medical risks.			
Risk of	Rate	Source	Ref.
Failure of oral contraceptives during typical use	9 in 100	ACOG	[6]
Household burglary†	2.5 in 100†	US Department of Justice‡	[7]
Ureteral injury during pelvic laparoscopy	2 in 100	Ostrzenski <i>et al.</i>	[8]
Violent crime	1.7 in 100†	US Department of Justice	[7]
Dying from a car accident	1 in 100†	National Safety Council§	[10]
Complication during tubal sterilization	0.9–1.6 in 100	ACOG	[9]
Uterine perforation during hysteroscopy	1 in 100	Agostini <i>et al.</i>	[10]
Uterine perforation during dilation and curettage	0.9 in 100	Hefler <i>et al.</i>	[11]
Uterine rupture during TOLAC, previous cesarean × 2	9–18 in 1000	ACOG	[12]
Dying from accidental poisoning	8 in 1000†	National Safety Council	[10]
Failure of copper IUD during typical use	8 in 1000	ACOG	[6]
Uterine rupture during TOLAC, previous cesarean × 1	7–9 in 1000	ACOG	[12]
Dying from a fall	6 in 1000†	National Safety Council	[10]
Motor vehicle theft	6 in 1000†	US Department of Justice	[7]
Failure of tubal sterilization	5 in 1000	ACOG	[9]
Bowel injury during gynecologic laparoscopy	5 in 1000	Magrina	[13]
Amniocentesis-related fetal loss	4 in 1000	Odibo <i>et al.</i>	[14]
Failure of levonorgestrel IUD during typical use	2 in 1000	ACOG	[6]
Perforation with IUD placement	1 in 1000	ACOG	[6]
†Numbers represent nonmedical risks.			
‡All data from the US Department of Justice is based on Bureau of Justice Statistics data from 2009.			
§All data from National Safety Council is based on National Center for Health Statistics-Mortality data for 2008.			
ACOG: American College of Obstetrics and Gynecology; IUD: Intrauterine device; TOLAC: Trial of labor after cesarean.			

perforation during an IUD placement was less than her risk of dying from a fall, her decision would have been different.

#### Financial & competing interests disclosure

The author has no relevant affiliations or financial involvement with any organization or entity with a financial

interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

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