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## Prevalence and alternative explanations influence cancer diagnosis: An experimental study with physicians.

Sirota, Miroslav; Kostopoulou, Olga; Round, Thomas; & Samaranayaka, Shyamalee.

Health Psychology, Vol 36(5), May 2017, 477-485  
<http://dx.doi.org/10.1037/hea0000461>

▼ Abstract

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### Abstract

**Objective:** Cancer causes death to millions of people worldwide. Early detection of cancer in primary care may enhance patients' chances of survival. However, physicians often miss early cancers, which tend to present with undifferentiated symptoms. Within a theoretical framework of the hypothesis generation (HyGene) model, together with psychological literature, we studied how 2 factors—cancer prevalence and an alternative explanation for the patient's symptoms—impede early cancer detection, as well as prompt patient management. **Method:** Three hundred family physicians diagnosed and managed 2 patient cases, where cancer was a possible diagnosis (one colorectal cancer, the other lung cancer). We employed a 2 (cancer prevalence: low vs. high) × 2 (alternative explanation: present vs. absent) between-subjects design. Cancer prevalence was manipulated by changing either patient age or sex; the alternative explanation for the symptoms was manipulated by adding or removing a relevant clinical history. Each patient consulted twice. **Results:** In a series of random-intercept logistic models, both higher prevalence (OR = 1.92, 95% confidence interval [CI 1.27, 2.92]) and absence of an alternative explanation (OR = 1.70, 95% CI [1.11, 2.59]) increased the likelihood of a cancer diagnosis, which, in turn, increased the likelihood of prompt referral (OR = 22.84, 95% CI [16.14, 32.32]). **Conclusions:** These findings confirm the probabilistic nature of the diagnosis generation process and validate the application of the HyGene model to early cancer detection. Increasing the salience of cancer—such as listing cancer as a diagnostic possibility—during the initial hypothesis generation phase may improve early cancer detection. (PsycINFO Database Record (c) 2017 APA, all rights reserved)

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## Expectations for antibiotics increase their prescribing: Causal evidence about localized impact.

Sirota, Miroslav; Round, Thomas; Samaranayaka, Shyamalee; & Kostopoulou, Olga.

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▼ Abstract

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### Abstract

**Objective:** Clinically irrelevant but psychologically important factors such as patients' expectations for antibiotics encourage overprescribing. We aimed to (a) provide missing causal evidence of this effect, (b) identify whether the expectations distort the perceived probability of a bacterial infection either in a pre- or postdecisional distortions

pathway, and (c) detect possible moderators of this effect. Method: Family physicians expressed their willingness to prescribe antibiotics (Experiment 1,  $n_1 = 305$ ) or their decision to prescribe (Experiment 2,  $n_2 = 131$ ) and assessed the probability of a bacterial infection in hypothetical patients with infections either with low or high expectations for antibiotics. Response order of prescribing/probability was manipulated in Experiment 1. Results: Overall, the expectations for antibiotics increased intention to prescribe (Experiment 1,  $F(1, 301) = 25.32$ ,  $p < .001$ ,  $\eta_p^2 = .08$ , regardless of the response order; Experiment 2, odds ratio [OR] = 2.31, and OR = 0.75, Vignettes 1 and 2, respectively). Expectations for antibiotics did not change the perceived probability of a bacterial infection (Experiment 1,  $F(1, 301) = 1.86$ ,  $p = .173$ ,  $\eta_p^2 = .01$ , regardless of the response order; Experiment 2,  $d = -0.03$ , and  $d = +0.25$ , Vignettes 1 and 2, respectively). Physicians' experience was positively associated with prescribing, but it did not moderate the expectations effect on prescribing. Conclusions: Patients' and their parents' expectations increase antibiotics prescribing, but their effect is localized—it does not leak into the perceived probability of a bacterial infection. Interventions reducing the overprescribing of antibiotics should target also psychological factors. (PsycINFO Database Record (c) 2017 APA, all rights reserved)