

## CHALLENGING CASES

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### ORIGINAL RESEARCH

# Unexplained complaints in primary care: Evidence of action bias

When patients present with symptoms that do not fit a recognizable diagnostic pattern, testing—although often unnecessary—is preferred by primary care physicians.

### ABSTRACT

**Purpose** ▶ Primary care physicians sometimes encounter patients with clinical complaints that do not fit into a recognized diagnostic pattern. This study was undertaken to assess the way physicians respond to patients whose symptoms are unusual or unexplained—that is, what approach they take in the absence of a working hypothesis.

**Methods** ▶ We surveyed 130 primary care physicians affiliated with 3 academic centers in Israel, presenting 5 clinical vignettes describing patients who had unusual complaints, no clear diagnosis, and no apparent need for urgent care. We asked physicians to provide the most likely diagnosis for each case and to rate their level of confidence in that diagnosis; respondents were also asked to provide a management strategy for each case and their level of confidence in the chosen approach. Finally, we asked the physicians to estimate how many of their own patients have presentations similar to the individuals in the clinical vignettes.

**Results** ▶ Physicians proposed, on average, 22 diagnoses for each case. Most indicated that they would choose action (testing, consulting, sending the patient to the emergency

department, or prescribing) rather than follow-up only (87% vs 13%;  $P<.01$ ).

Respondents' confidence in the management approach they had chosen for all the cases was higher than their confidence in the diagnoses (5.6 vs 4.3, respectively, on a scale of 1-10;  $P<.001$ ). Physicians estimated that 10% to 20% of the patients they see in their practice have unusual or unexplained symptoms that are difficult to diagnose.

**Conclusion** ▶ Uncertain diagnosis is a regular challenge for primary care physicians. In such cases, we found that physicians prefer a work-up to follow-up, an inclination consistent with "action bias."

Physicians in primary care sometimes encounter patients with clinical complaints that do not fit into a recognized diagnostic pattern.<sup>1</sup> There are varying reports of the prevalence of such cases, ranging from  $\leq 10\%$  when stringent definitions of medically unexplained symptoms are used<sup>2</sup> to as high as 40% to 60% of visits.<sup>3,4</sup> Unexplained complaints, which may or may not be related to psychiatric disorders, can significantly contribute to high consumption of health care resources.<sup>5</sup> Uncertain diagnoses are associated with increased

testing<sup>6</sup> and false-positive results, which often lead to more tests and complications.<sup>7</sup>

When physicians face medically unexplained symptoms, their behavior often differs from the watchful waiting approach some recommend.<sup>6</sup> This behavior has been attributed to various factors, such as fear of litigation, greater concern about *omission* than *commission*, and perception of patient expectations.<sup>5</sup>

A study involving young patients suggested bias toward intervention for common pediatric diagnoses.<sup>8</sup> Using a similar design of physician responses to clinical vignettes, we sought to evaluate a potential bias toward action, such as testing or referral, for patients with unexplained medical complaints.

## METHODS

Over several months, 2 of us (AK, IG) identified 60 patients in our practices who had (1) unusual medical complaints, (2) no clear diagnosis, and (3) no apparent need for urgent care. After careful consideration, our team selected 5 cases that best fit the above criteria and reflected the widest spectrum of clinical presentations encountered in primary care settings.

After removing identifying patient information, we wrote each case up as a clinical vignette, then presented all 5 cases to primary care physicians affiliated with 3 major academic centers. For each case, respondents were asked to provide:

- the most likely diagnosis and their level of confidence in that diagnosis (on a scale of 1 [no confidence] to 10 [complete confidence])
- a management strategy (testing, consulting with a specialist, referral to the emergency department [ED], prescribing medication, or follow-up only) and their level of confidence in that choice.

Physicians were asked to estimate the frequency of such cases in their practice, as well.

Preparation of the data (cleaning, sorting, and filtering) was carried out using JMP v9.0 (SAS Institute, Cary, NC), and analyses were conducted with SPSS v19.0 (IBM, Chicago, Ill). We used descriptive statistics

to represent the data and chi-square and ANOVA to compare physicians' decisions (action vs follow-up). Nonparametric tests were used to compare levels of confidence for diagnosis and management.

## RESULTS

We surveyed a convenience sample of 130 primary care physicians affiliated with academic medical centers, 100 of whom responded. Most respondents (62%) were female, and 86% were certified in family medicine. The average age was 45 years (range 30-68 years), with a mean time out of medical school of 17 years (range 1-26 years). Respondents were born in 14 different countries and had undergone medical training in Europe, the United States, or Israel.

The diagnoses and management approaches selected for each clinical vignette are presented in TABLE 1. For each case, an average of 22 diagnoses (range 18-25) were proposed. Most physicians (87%;  $P<.01$ ) indicated that they would choose some type of action (testing, consulting, sending the patient to the ED, or prescribing medication) rather than follow-up alone (TABLE 2). Respondents were able to choose multiple management strategies.

For all 5 cases, the physicians had more confidence in their patient management approach than in their diagnosis (5.6 vs 4.3;  $P<.001$ ). On average, men had higher levels of confidence than women for both diagnosis and management ( $P<.05$ ). Other demographic characteristics, including age, experience, certification, and site of training, were not predictive of confidence level.

Respondents estimated that 10% to 20% of their own patients present with unusual and unexplained symptoms, like the patients in the clinical vignettes.

## DISCUSSION

Patients with undiagnosed signs and/or symptoms present a significant challenge in primary care. In such cases, physicians prefer a work-up to follow-up, with a confidence level in their management strategy that is higher than for their diagnostic hypotheses. There appears to be a stronger perceived



There appears to be a stronger perceived need to "do something" than to engage in watchful waiting and follow-up.

TABLE 1

## Little consensus on diagnoses and management strategies

Clinical vignette	Diagnostic hypotheses	Recommended management strategies
<p><b>Case 1</b> A 23-year-old man in good health, with no history of trauma, reports a recent decrease in tactile perception on his right leg. On examination, tactile sensation is decreased over a 3x3 cm area on the back of the knee; physical and neurological exams are otherwise unremarkable.</p>	<p>Neurologic /cord compression • DVT • Musculoskeletal condition • Psychological disorder • Disc herniation • MS • Trauma • Tumor • Vascular disease • Neuroma • Diabetes • Lead poisoning • Nutritional problem • Leprosy</p>	<p><b>Tests:</b> • Blood work: CBC, B<sub>12</sub>, folic acid, glucose, CRP, ESR, TSH, iron, zinc, VDRL, zoster antibodies, creatinine, liver enzymes • Imaging: Lumbar/chest x-ray, CT, MRI, US • Skin biopsy <b>Consult:</b> Neurology, orthopedic, dermatology <b>Therapeutic trial:</b> • Corticosteroid injection, NSAIDs, acyclovir, B<sub>12</sub>, B<sub>6</sub>, B<sub>1</sub>, amitriptyline • Physiotherapy</p>
<p><b>Case 2</b> A 69-year-old woman in good health (with well-managed hypertension) presents with nausea—unrelated to eating—of one month’s duration. She has no other symptoms and no signs of depression or anxiety. Physical and neurological exams are normal, as is biochemistry testing.</p>	<p>Tumor • Celiac disease • GI (gastritis, gastric ulcer, GERD, dyspepsia) • Medication adverse effect • Hyponatremia • Psychological condition • Vertigo • Hernia • Elevated intracranial pressure • Liver disease • Neurologic/ophthalmologic disease • UTI • Gall stones/cholecystitis • Uremia • Diabetes • Amebiasis</p>	<p><b>Tests:</b> • Blood work: Kidney function, creatinine, TSH, amylase, glucose, prolactin, iron, ferritin, PT, PTT, CMV, EBV antibodies • Imaging: Gastroscopy, US, head CT, upper GI series, EKG, chest x-ray • <i>Helicobacter pylori</i>, urea breath test, urinalysis, occult blood test, postural testing, oncologic markers, hepatitis B and C, fecal test <b>Consult:</b> Ophthalmology, neurology, ENT <b>Therapeutic trial:</b> • PPI, domperidone • Stop BP meds (diuretic and ACE inhibitor)</p>
<p><b>Case 3</b> A healthy 50-year-old man reports constant pain in his right flank, which began 2 years ago. On examination, a 1x2 cm area over the right upper abdomen is sensitive to touch. The remainder of the physical exam is unremarkable; blood and urine tests and US and CT of the abdomen are normal and a consultant surgeon finds no pathology.</p>	<p>Neurologic • GI (stomach ache, irritable bowel, Crohn’s disease, colitis) • Nephrolithiasis • Diverticulitis • Radiated/skeletal pain • Colon cancer • Depression • Peripheral neuropathy • Liver disease • Psychological condition • Hernia • Cholecystitis/gallstones • Spondylitis • Herniated disc • Stress fracture • Pancreatitis • Postherpetic pain • Peptic ulcer • Trauma</p>	<p><b>Tests:</b> • Blood work: Liver enzymes, herpes antibodies, tumor markers, ERCP • Imaging: CT-IVP, lumbar x-ray, gastroscopy, duplex US, bone scan, MRI, colonoscopy, barium enema <b>Consult:</b> Urology, gastroenterology, pain clinic, neurology, orthopedic <b>Therapeutic trial:</b> Pain killers (opioids and nonopioids), NSAIDs, antidepressants, anxiolytics, lidocaine injection</p>

See footnotes on facing page.

need to “do something” than to engage in watchful waiting and follow-up.

■ **Symptoms subside without treatment.** Notably, in all the cases that formed the basis for the clinical vignettes used in our survey, the patients’ complaints eventually

subsided, with no specific therapy. In some cases of unclear diagnosis, an active work-up may be justified; in others, watchful waiting before testing for unexplained complaints may be preferable.

■ **Action bias.** The preference for ac-

TABLE 1

## Little consensus on diagnoses and management strategies (cont'd)

Clinical vignette	Diagnostic hypotheses	Recommended management strategies
<p><b>Case 4</b> A 3-year-old boy with normal development and current vaccination status has a new-onset rash (1-mm pustules on his legs and forearms), with no fever or itching. He had chickenpox a year ago.</p>	<p>Varicella • Impetigo • Pyoderma • Bullar disease • Hydrotic cystic disease • Allergy • Mosquito bites • Unspecified viral illness • Pustulosis • Herpes • Eczema • Scarlet fever • Strep/staph infection • Vasculitis • Poisoning • Miliaria • Psoriasis • Folliculitis • Keratosis • Medication side effect</p>	<p><b>Tests:</b></p> <ul style="list-style-type: none"> <li>• Blood work: CBC, ESR, biochemistry, herpes antibodies, CMV</li> <li>• Imaging: Abdominal US</li> <li>• Culture from pustules</li> <li>• Throat culture/biopsy</li> </ul> <p><b>Consult:</b> Dermatology, rheumatology, infectious disease, pediatric</p> <p><b>Therapeutic trial:</b> Systemic or local antibiotics, acyclovir, antihistamines, local antiseptics</p>
<p><b>Case 5</b> A 57-year-old healthy nonsmoker reports a strange sensation—"like a coating over my mouth and tongue"—that makes eating and drinking unpleasant, which he's had for one month. On examination, tiny nonsensitive aphthae are found over the frenulum of his tongue. Blood count and biochemistry testing is normal.</p>	<p>Tumor • Stomatitis • GI (GERD, upper GI) • Behçet's disease • SLE • Sjögren's syndrome • Candida • B<sub>12</sub> deficiency • Postherpetic pain • Burn • Diabetes • Vascular disease • Cranial nerve disease • Allergy • Obstructed salivary glands • STD • Thiamine deficiency • Glossitis • Pemphigus • Medication side effects • Psychological condition</p>	<p><b>Tests:</b></p> <ul style="list-style-type: none"> <li>• Blood work: Hepatitis B and C, CBC, ANA, folic acid, biochemistry, iron, herpes antibodies, HIV, VDRL, and other STDs</li> <li>• Imaging: Gastroscopy, dental x-ray, head CT, neck CT, upper abdomen US</li> <li>• Swab for candida culture, biopsy</li> </ul> <p><b>Consult:</b> Oral surgery, gastroenterology, oncology, rheumatology, ENT, neurology, dentist, other family doctors, psychology</p> <p><b>Therapeutic trial:</b> PPI, miconazole oral gel, prednisone, acyclovir, triamcinolone oral paste, fluconazole, vitamins, ice</p>

ANA, antinuclear antibodies; BP, blood pressure; CBC, complete blood count; CMV, cytomegalovirus; CRP, C-reactive protein; CT, computed tomography; CT-IVP, computed tomography intravenous pyelogram; EBV, Epstein-Barr virus; ED, emergency department; EKG, electrocardiogram; ENT, ear, nose, and throat; ERCP, endoscopic retrograde cholangiopancreatography; ESR, erythrocyte sedimentation rate; GERD, gastroesophageal reflux disease; GI, gastrointestinal; HIV, human immunodeficiency virus; MRI, magnetic resonance imaging; NSAIDs, nonsteroidal anti-inflammatory drugs; PPI, proton pump inhibitor; PT, prothrombin time; PTT, partial thromboplastin time; SLE, systemic lupus erythematosus; STD, sexually transmitted disease; TSH, thyroid-stimulating hormone; US, ultrasound; VDRL, venereal disease research lab.

tion over inaction in all the cases presented suggests what has been described as "action bias."<sup>9</sup> The term is derived from sports; in soccer penalty kicks, for example, it applies to goalkeepers who jump before they can see the kick direction and miss.<sup>10</sup>

According to the norm theory,<sup>11</sup> such errors of commission derive from players' perception that they are expected to act.<sup>10</sup> Conversely, in instances in which inaction is the norm, an *omission* bias prevails, as people tend to judge acts that are harmful as worse than omissions that are even more harmful.<sup>10</sup> In medicine, action bias has been found to influence clinical practice and contribute

to overuse of both diagnostic testing and procedures.<sup>12-14</sup>

■ **Gender difference.** Gender has been shown to affect self-perception in cognitive bias.<sup>15</sup> In a study of confidence levels among undergraduate students, overconfidence was found to be more prevalent among males than females, particularly for incorrect answers.<sup>16</sup> This observation may relate to the gender differences in our study in physicians facing diagnostic uncertainty.

■ **Study limitations.** Our research was limited by the nature and type of our sample, but because the inclination to act was found in both immigrant and native practitioners,

TABLE 2

Management options: Which strategy is best?\*

Clinical vignette	Testing (%)	Therapeutic trial (%)	Consultation with specialist (%)	Referral to ED (%)	Follow-up only (%)
Case 1: Decreased tactile perception on right leg	46	14	30	3	34
Case 2: Nausea unrelated to eating	75	44	36	1	2
Case 3: Pain in the right flank of 2 years' duration	40	28	48	1	11
Case 4: Toddler with unexplained rash	24	34	56	5	9
Case 5: Strange sensation in mouth	38	23	71	0	6
Average	45	29	48	2	13

ED, emergency department.

\*Because respondents were able to choose more than one option, totals exceed 100%.

**>**  
In all the cases that formed the basis for our clinical vignettes, the patients' complaints eventually subsided, with no specific therapy.

the observation of action bias could be generalizable to all primary care physicians. The clinical vignettes we chose may not be representative of commonly seen cases of medically unexplained symptoms. Also, our questionnaire was not tested beyond at-face validity. It is possible, too, that nonresponders would be less inclined to action in the face of uncertainty. With the high (77%) response rate to our survey, however, their inclusion would be unlikely to strikingly alter the results.

Another limitation inherent to the design of our study is that physicians may respond to vignettes in a way that is substantially different than their response in actual practice. In a practice setting, physicians are able to listen to a full narrative and apply various doctor-patient communication tools, which are especially important in the context of unexplained complaints.<sup>17</sup>

On the other hand, the artificial setting may reduce the fear of litigation. Our observation of greater confidence in the need for action than for the diagnostic hypothesis is consistent with testing overuse in field studies.<sup>6</sup> The fact that our survey went only to physicians affiliated with academic centers is another potential limitation, although it is not clear whether these clinicians differ from nonacademic physicians in their approach to unexplained complaints.

Finally, the design of this study did not allow us to explore the reasons for action

bias, a task that might be addressed in focus groups or interviews.

**■ A closer look at bias.** Our findings suggest a need for more in-depth research on potential biases that drive medical overuse, as part of an overall strategy to improve physicians' approach to medically unexplained symptoms.<sup>17</sup> Remedies may require training, practice and failure feedback, quality improvement tools, and innovative management strategies.<sup>1,18</sup>

Uncertain diagnosis appears to be a frequent challenge in primary care settings. In the face of uncertainty, weighing the potential harms of overtesting vs follow-up and facilitating an informed decision-making process with the patient may lead to a reduction in action bias,<sup>19</sup> and thus, in the increased testing and higher health care consumption that often result.

**JFP**

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