



## **Supporting Information**

### **Supplementary information and results**

**This appendix was part of the submitted manuscript and has been peer reviewed.  
It is posted as supplied by the authors.**

Appendix to: Hill MG, Sim M, Mills B. The quality of diagnosis and triage advice provided by free online symptom checkers and apps in Australia. *Med J Aust* 2020; doi: 10.5694/mja2.50600.

**Table 1. Clinical vignettes used in our investigation**

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
<b>Requires emergency care</b>				
Acute liver failure (acetaminophen poisoning acceptable) <sup>1,2</sup> Triage could be emergent or urgent.	A 48-year-old woman with a history of migraine headaches presents to the emergency room with altered mental status over the last several hours. She was found by her husband, earlier in the day, to be acutely disoriented and increasingly somnolent. On physical examination, she has scleral icterus, mild right upper quadrant tenderness, and asterixis. Preliminary laboratory studies are notable for a serum ALT of 6498 units/L, total bilirubin of 5.6 mg/dL, and INR of 6.8. Her husband reports that she has consistently been taking pain medications and started taking additional 500 mg acetaminophen pills several days ago for lower back pain. Further history reveals a medication list with multiple acetaminophen-containing preparations.	48-year-old female with history of migraines. Confused. Disoriented. Increasingly sleepy. Mild right upper abdomen tenderness. Has been on various pain medications and has been taking more paracetamol over the last few days because of lower back pain. Chief complaint = confusion	Yes	No
Appendicitis <sup>1,2</sup>	A 12-year-old girl presents with sudden-onset severe generalised abdominal pain associated with nausea, vomiting, and diarrhoea. On exam she appears ill and has a temperature of 104°F (40°C). Her abdomen is tense with generalised tenderness and guarding. No bowel sounds are present.	12-year-old female. Sudden, severe abdominal pain. Feels sick (nausea). Had vomiting and diarrhoea. Temperature 40°C. Chief complaint = abdominal pain	Yes	Yes
Asthma (or acute asthma, status asthmaticus, exacerbation of asthma) <sup>1,3</sup>	A 27-year-old woman with a history of moderate persistent asthma presents to the emergency room with progressive worsening of shortness of breath, wheezing, and cough over 3 days. She reports prior exposure to a person who had a runny nose and a hacking cough. She did not receive significant relief from her rescue inhaler with worsening symptoms, despite increased use. She has been compliant with her maintenance asthma regimen, which consists of an inhaled corticosteroid and a leukotriene receptor antagonist for maintenance therapy and albuterol as rescue therapy. Her cough is disrupting her sleep pattern and as a consequence she is experiencing daytime somnolence, which is affecting her job performance.	27-year-old female. History of asthma. Progressively worsening shortness of breath, wheezing and coughing over 3 days. Not responding to inhalers. Cough disturbing her sleep and is sleepy in the daytime. Chief complaint = shortness of breath/breathing problem	Yes	Yes
COPD exacerbation (severe) (diagnosis may include acute bronchitis) <sup>1,4</sup> Triage could be emergent or urgent	A 67-year-old woman with a history of COPD presents with 3 days of worsening dyspnoea and increased frequency of coughing. Her cough is now productive of green, purulent sputum. The patient has a 100-pack-year history of smoking. She has had intermittent, low-grade fever of 100°F (37.7°C) for the past 3 days and her appetite is poor. She has required increased use of rescue bronchodilator therapy in addition to her maintenance medications to control symptoms.	67-year-old female. History of chronic obstructive airways disease (COPD). 3 days of worsening shortness of breath and cough with green phlegm. Mild fever. (37.7°C) Poor appetite. Increased use of bronchodilator/salbutamol in addition to normal treatment. Smoker (if asked). Chief complaint = shortness of breath/breathing problem	Yes	Yes
Haemolytic uremic syndrome <sup>1,5</sup>	A 4-year-old boy presents with a 7-day history of abdominal pain and watery diarrhoea that became bloody after the first day. Three days before the onset of symptoms, he had visited the county fair with his family and had eaten a hamburger. Physical examination reveals a mild anaemia	4-year-old male. 7 days of stomach pain. Blood in diarrhoea. (Only if asked) - Ate a hamburger at a fair 3 days before stomach-ache began. Chief complaint = diarrhoea	No	No

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Myocardial infarction (heart attack) <sup>1,4</sup>	Mr. Y is a 64-year-old Chinese male who presents with chest pain for 24 hours. One day before presentation, the patient began to experience 8/10, non-radiating substernal chest pressure associated with diaphoresis and shortness of breath. The pain initially improved with Tylenol, however over the following 24 hours, his symptoms worsened. The patient went to his primary physician, where an EKG was performed which showed ST elevation in leads V2–V6.	64-year-old male. 1 day of chest pain (8/10 pain). Pain does not move elsewhere. Sweating. Breathless. Feels tightness in mid chest (include if asked, as this was an added symptom in Semigran article). Chief complaint = chest pain	Yes	Yes
Ureteric stones (kidney stones) <sup>1,6</sup>	A 45-year-old white man presents to the emergency department with a 1-hour history of sudden onset of left-sided flank pain radiating down toward his groin. The patient is writhing in pain, which is unrelieved by position. He also complains of nausea and vomiting.	45-year-old male. 1 hour of severe left sided lower back pain radiating to groin. Feels sick. Vomiting. Pain unrelieved by position. Chief complaint = Back pain	Yes	Yes
Malaria <sup>1,7</sup>	A 28-year-old man presents to his physician with a 5-day history of fever, chills, and rigors, not improving with acetaminophen (paracetamol), along with diarrhoea. He had been traveling in Central America for 3 months, returning 8 weeks ago. He had been bitten by mosquitoes on multiple occasions, and although he initially took malaria prophylaxis, he discontinued it due to mild nausea. He does not know the specifics of his prophylactic therapy. On examination he has a temperature of 100.4°F (38°C) and is mildly tachycardic with a BP of 126/82 mmHg. The remainder of the examination is normal.	28-year-old male. 5 days of chills, shivering, diarrhoea. (Only if asked by symptom checker - Recently been overseas to New Guinea. Was bitten by mosquitos. Didn't regularly take anti-malaria medication). Chief complaint = fever	No	No
Meningitis <sup>1,8</sup>	An 18-year-old male student presents with severe headache and fever that he has had for 3 days. Examination reveals fever, photophobia, and neck stiffness.	18-year-old male. 3 days of severe headache. Fever, sore neck and light sensitivity. Chief complaint = headache	Yes	Yes
Pulmonary embolism <sup>1,2</sup>	A 65-year-old man presents to the emergency department with acute onset of short of breath of 30 minutes' duration. Initially, he felt faint but did not lose consciousness. He is complaining of left-sided chest pain that worsens on deep inspiration. He has no history of cardiopulmonary disease. A week ago, he underwent a total left hip replacement and, following discharge, was on bed rest for 3 days due to poorly controlled pain. He subsequently noticed swelling in his left calf, which is tender on examination. His current vital signs reveal a fever of 100.4°F (38.0°C), heart rate 112 bpm, BP 95/65, and an O <sub>2</sub> saturation on room air of 91%.	65-year-old male. Breathless for last 30 minutes. Chest pain on left side which is worse when breathing in. Had recent surgery, with bedrest. Has a swollen left calf which is painful. Has a fever. No history of heart disease. Chief complaint = shortness of breath/breathing problem	Yes	Yes
Stroke <sup>1,3</sup>	A 70-year-old man with a history of chronic hypertension and atrial fibrillation is witnessed by a family member to have nausea, vomiting, and right-sided weakness, as well as difficulty speaking and comprehending language. The symptoms started with only mild slurred speech before progressing over several minutes to severe aphasia and right arm paralysis. The patient is taking warfarin.	70-year-old male. History of high blood pressure and atrial fibrillation. Feels sick. Vomiting. Weak down right side. Right arm paralysed. Has trouble speaking and is confused. Takes warfarin. Chief complaint = weak right arm	Yes	Yes

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Tetanus <sup>1,9</sup>	A 63-year-old man sustained a cut on his hand while gardening. His immunisation history is significant for not having received a complete tetanus immunisation schedule. He presents with signs of generalised tetanus with trismus ("lock jaw"), which results in a grimace described as "risus sardonius" (sardonic smile). Intermittent tonic contraction of his skeletal muscles causes intensely painful spasms, which last for minutes, during which he retains consciousness. The spasms are triggered by external (noise, light, drafts, physical contact) or internal stimuli, and as a result he is at the risk of sustaining fractures or developing rhabdomyolysis. The tetanic spasms also produce opisthotonos, board-like abdominal wall rigidity, dysphagia, and apnoeic periods due to contraction of the thoracic muscles and/or glottal or pharyngeal muscles. During a generalised spasm the patient arches his back, extends his legs, flexes his arms in abduction, and clenches his fists. Apnoea results during some of the spasms. Autonomic overactivity initially manifests as irritability, restlessness, sweating, and tachycardia. Several days later this may present as hyperpyrexia, cardiac arrhythmias, labile hypertension, or hypotension.	65-year-old male. Cannot open mouth. Muscles tightened, causing painful spasms for minutes at a time. Sweating. Fast heart rate. Has cut his hand while gardening and did not get a tetanus injection. Chief complaint = muscle spasms	No	Yes
Hendra virus <sup>10,11</sup>		29-year-old female. High fever, cough, sore throat, headache and tiredness. Becoming increasingly drowsy. Finding it difficult to breathe. Lives in Queensland and works in stables. Chief complaint = fever	No	No
<b>Requires urgent care</b>				
Deep vein thrombosis <sup>1,2,12</sup>	A 65-year-old woman presents with unilateral leg pain and swelling of 5 days' duration. There is a history of hypertension, mild CHF, and recent hospitalisation for pneumonia. She had been recuperating at home but on beginning to mobilise and walk, the right leg became painful, tender, and swollen. On examination, the right calf is 4 cm greater in circumference than the left when measured 10 cm below the tibial tuberosity. Superficial veins in the leg are more dilated on the right foot and the right leg is slightly redder than the left. There is some tenderness on palpation in the popliteal fossa behind the knee.	65-year-old female. History of high blood pressure and mild congestive heart failure. 5 days of swelling and pain in 1 leg. Recent hospitalisation. Leg is painful, sore, red, swollen. Chief complaint = Leg pain	Yes	Yes
Pneumonia (could be called chest infection) <sup>1,2</sup>	A 65-year-old man with hypertension and degenerative joint disease presents to the emergency department with a three-day history of a productive cough and fever. He has a temperature of 38.3°C (101°F), a blood pressure of 144/92 mm Hg, a respiratory rate of 22 breaths per minute, a heart rate of 90 beats per minute, and oxygen saturation of 92 percent while breathing room air. Physical examination reveals only crackles and aegophony in the right lower lung field. The white-cell count is 14,000 per cubic millimetre, and the results of routine chemical tests are normal. A chest radiograph shows an infiltrate in the right lower lobe.	65-year-old male. History of high blood pressure and degenerative joint disease. Had 3 days of coughing up phlegm with a fever. Temperature 38.3°C. Chief complaint = cough	Yes	Yes

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Acute bronchitis (bronchitis or URTI also acceptable) <sup>1,3</sup>	A 34-year-old woman with no known underlying lung disease 12-day history of cough. She initially had nasal congestion and a mild sore throat, but now her symptoms are all related to a productive cough without paroxysms. She denies any sick contacts. On physical examination she is not in respiratory distress and is afebrile with normal vital signs. No signs of URI are noted. Scattered wheezes are present diffusely on lung auscultation.	34-year-old female. 12 days of coughing. Initially had blocked nose and sore throat. Now has cough which brings up phlegm, but no fever. Chief complaint = cough	Yes	Yes
Acute otitis media (URTI or viral infection also acceptable) <sup>1,4</sup>	An 18-month-old toddler presents with 1 week of rhinorrhoea, cough, and congestion. Her parents report she is irritable, sleeping restlessly, and not eating well. Overnight she developed a fever. She attends day care and both parents smoke. On examination signs are found consistent with a viral respiratory infection including rhinorrhoea and congestion. The toddler appears irritable and apprehensive and has a fever. Otoscopy reveals a bulging, erythematous tympanic membrane and absent landmarks.	18-month-old female. 1 week of runny nose, cough, feels chesty, irritable. No appetite. Fever. Goes to day care. Chief complaint = runny nose	Yes	Yes
Acute sinusitis (or sinusitis, chronic sinusitis, acute on chronic sinusitis) <sup>1,3</sup>	Mrs. S is a 35-year-old woman who presents with 15 days of nasal congestion. She has had facial pain and green nasal discharge for the last 12 days. She has had no fever. On physical examination, she has no fever and the only abnormal finding is maxillary tenderness on palpation. She is otherwise healthy, except for mild obesity. She is on no medications, except for an over-the-counter decongestant. She has no drug allergies	35-year-old female. Unwell for 15 days. Has blocked nose with green mucous and facial pain for last 12 days. No fever. Chief complaint = nasal congestion	Yes	Yes
Back strain (or acute back sprain, acute lumbar sprain, lumbar sprain, lumbar injury, disc prolapse, sciatica) <sup>1,3</sup>	Consider a 35-year-old man who developed low back pain after shovelling snow 3 weeks ago. He presents to the office for an evaluation. On examination there is a new left foot drop. In study 82% physicians recommend MRI (sciatica/sprain)	35-year-old male. Back pain following shovelling 3 weeks ago. (Only if asked - Left foot has gone numb and is weak. This was an added symptom in Semigran article). Chief complaint = back pain	Yes	No
Bowel cancer (potential diagnoses are bowel cancer, haemorrhoids, diverticular disease, other inflammatory bowel disease) <sup>2,13</sup>		56-year-old female with bleeding noticed when opening bowels. Has had some diarrhoea and constipation in the past 6 months. Chief complaint = bleeding from the bowels	Yes	Yes
Cellulitis <sup>1,4</sup>	A 45-year-old man presents with acute onset of pain and redness of the skin of his lower extremity. Low-grade fever is present, and the pretibial area is erythematous, oedematous, and tender.	45-year-old male. Pain, swollen, sore and redness of skin in lower leg. Mild fever. Chief complaint = leg pain	Yes	No

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Infectious mononucleosis (glandular fever) (URTI, tonsillitis, pharyngitis, viral infection acceptable) <sup>1,3</sup>	A 16-year-old female high school student presents with complaints of fever, sore throat, and fatigue. She started feeling sick 1 week ago. Her symptoms are gradually getting worse, and she has difficulty swallowing. She has had a fever every day, and she could hardly get out of bed this morning. She does not remember being exposed to anybody with a similar illness recently. On physical examination she is febrile and looks sick. Enlarged cervical lymph nodes, exudative pharyngitis with soft palate petechiae and faint erythematous macular rash on the trunk and arms are found.	16-year-old female. 1-week history of fever, sore throat, fatigue, difficulty swallowing, unable to get out of bed. Chief complaint = fever	Yes	Yes
Migraine <sup>4,14</sup>		44-year-old female. 2-day severe throbbing headache. Feels nauseated when she moves. Wants to stay in bed with curtains closed. Family has history of migraines. Chief complaint = headache	Yes	Yes
Queensland tick typhus <sup>15-17</sup>		25-year-old female. Been unwell for 9 days. Fever (38.5°C), headache, dry cough, widespread rash. Muscle weakness. Painful upper left abdomen, with nausea and vomiting. Painful joints. Has been camping and gone on bush walks. Chief complaint = fever	No	No
Ross River virus <sup>18,19</sup>		19-year-old male. 2 weeks of fever with chills, muscle aches and joint pain with swelling and stiffness at joints. Rash. Fatigue. Swollen glands. Headache behind the eyes. Chief complaint = fever	No	No
Shingles <sup>1,3</sup>	A 77-year-old man reports a 5-day history of burning and aching pain on the right side of his chest. This is followed by the development of erythema and a maculopapular rash in this painful area, accompanied by headache and malaise. The rash progressed to develop clusters of clear vesicles for 3 to 5 days, evolving through stages of pustulation, ulceration, and crusting.	77-year-old male. 5 days of burning and pain on right side of chest. Chest is red with a rash, some spots are clear raised bumps, while some are red and flat. Has a headache and feels tired and unwell. Chief complaint = chest pain	Yes	No
Tonsillitis (or acute pharyngitis, throat infection, URTI) <sup>1,3</sup>	A 7-year-old girl presents with abrupt onset of fever, nausea, vomiting, and sore throat. The child denies cough, rhinorrhoea, or nasal congestion. On physical exam, oral temperature is 101°F (38.5°C) and there is an exudative pharyngitis, with enlarged cervical lymph nodes. A rapid antigen test is positive for group A streptococcus (GAS).	7-year-old female. Fever (38.5°C). Feels sick. Vomiting. Sore throat, swollen neck glands. Tonsils have visible pus. No cough, no runny nose nor blocked nose. Chief complaint = fever	Yes	Yes

**Requires non-urgent care**

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Peptic ulcer disease (or GORD, duodenal ulcer, gastric ulcer) <sup>1,2</sup>	A 40-year-old man presents to his primary care physician with a 2-month history of intermittent upper abdominal pain. He describes the pain as a dull, gnawing ache. The pain sometimes wakes him at night, is relieved by food and drinking milk, and is helped partially by ranitidine. He had a similar but milder episode about 5 years ago, which was treated with omeprazole. Physical examination reveals a fit, apparently healthy man in no distress. The only abnormal finding is mild epigastric tenderness on palpation of the abdomen.	40-year-old male. 2-month history of intermittent upper abdominal pain. (Dull and gnawing ache). Wakes at night and feels better with food, drink, milk or antacid/Gaviscon. Had a similar experience 5 years ago. Chief complaint = abdominal pain	Yes	Yes
Allergic rhinitis <sup>1,4</sup>	A 22-year-old student presents with a 5-year history of worsening nasal congestion, sneezing, and nasal itching. Symptoms are year-round but worse during the spring season. On further questioning it is revealed that he has significant eye itching, redness, and tearing as well as palate and throat itching during the spring season. He remembers that his mother told him at some point that he used to have eczema in infancy.	22-year-old male. 5-year history of blocked nose, sneezing, nasal itching which is worse in spring. Has itchy eyes which are red and watery. Throat and palate are also itchy. Has a history of eczema in early childhood. Chief complaint = blocked nose	Yes	Yes
Aphthous ulcers (canker sore) <sup>1,3</sup>	A 17-year-old male student presents with recurrent mouth ulceration since his early schooldays. He has no respiratory, anogenital, gastrointestinal, eye, or skin lesions. His mother had a similar history as a teenager. The social history includes no tobacco use and virtually no alcohol consumption. He has no history of recent drug or medication ingestion. Extra-oral exam reveals no significant abnormalities and specifically no pyrexia; no cervical lymph node enlargement; nor cranial nerve, salivary, or temporomandibular joint abnormalities. Oral exam reveals a well-restored dentition and there is no clinical evidence of periodontal-attachment loss or pocketing. He has five 4 mm round ulcers with inflammatory haloes in his buccal mucosae.	17-year-old male. Reoccurring mouth ulcers for a year. No respiratory, anal or genital, gastrointestinal, eye or skin lesions. Mother has similar history. No history of drugs or medications. Chief complaint = mouth ulcers	Yes	Yes
Back pain (not a diagnosis) <sup>1,3</sup>	A 38-year-old man with no significant history of back pain developed acute lower back pain when lifting boxes 2 weeks ago. The pain is aching in nature, located in the left lumbar area, and associated with spasms. He describes previous similar episodes several years ago, which resolved without seeing a doctor. He denies any leg pain or weakness. He also denies fevers, chills, weight loss, and recent infections. Over-the-counter ibuprofen has helped somewhat, but he has taken it only twice a day for the past 3 days because he does not want to become dependent on painkillers. On examination, there is decreased lumbar flexion and extension secondary to pain, but a neurologic exam is unremarkable.	38-year-old male. Sudden lower back pain after lifting. No leg pain or weakness, no fevers or chills, no weight loss or recent infections. Chief complaint = back pain	Yes	Yes
Bee sting without anaphylaxis <sup>1,4</sup>	A 9-year-old boy is brought to the ER after being stung by a bee at a picnic. He is crying hysterically. After 15 minutes of calming him down, exam reveals a swollen tender upper lip but no tongue swelling, no drooling, no stridor, no rash, and no other complaints.	9-year-old male. Stung by a bee, swollen and sore upper lip. No tongue swelling, drooling, noisy breathing, rash or other complaints. Chief complaint = bee sting	Yes	Yes

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Bursitis (trochanteric bursitis) <sup>20</sup>		60-year-old woman. Developed pain in L hip, hurts to sleep on that side. Otherwise well. Chief complaint = hip pain	Yes	Yes
Eczema <sup>1,3</sup>	A 12-year-old female presents with dry, itchy skin that involves the flexures in front of her elbows, behind her knees, and in front of her ankles. Her cheeks also have patches of dry, scaly skin. She has symptoms of hay fever and has recently been diagnosed with egg and milk allergy. She has a brother with asthma and an uncle and several cousins who have been diagnosed with eczema.	12-year-old female. Dry, itchy skin in front of elbows, in front of knees and cheeks have patches of dry, scaly skin. Symptoms of hay fever. Has egg and milk allergy. Brother has asthma and Uncle and cousins have eczema. Chief complaint = rash	Yes	Yes
Molluscum contagiosum <sup>21</sup>		7-year-old male. Has small raised shiny pearly spots on his stomach and back with a dot in the middle. They are not painful. (If asked, no fever or other illness. Not itchy.) Chief complaint = rash	Yes	Yes
Solar keratosis <sup>22</sup>		43-year-old female. She has fair skin. Has a small scab (3 mm) on top of head which grows back if knocked off. Dry and rough to touch. Chief complaint = skin lesion or skin mark	Yes	Yes
Sprained ankle <sup>4,23</sup>		10-year-old female. Fell and twisted ankle. Slightly swollen and bruised ankle. Limping, and ankle is sore. No deformity, no sound of broken bones. Chief complaint = Twisted ankle	Yes	Yes
Viral upper respiratory <sup>1,3</sup>	Mr. R. is a 56-year-old man who presents to you with 6 days of non-productive cough, nasal congestion, and green nasal discharge. He has had intermittent fevers as high as 100.8. His physical examination is normal except for rhinorrhoea. He is otherwise healthy, except for chronic osteoarthritis of the right knee. He has no drug allergies.	56-year-old male, 6-day cough, nasal congestion, green nasal discharge. Fever (38.2°C) and runny nose. Chief complaint = cough	Yes	Yes
<b>Self-care appropriate</b>				
Blue bottle Jellyfish sting (Portuguese man-of-war; will accept jellyfish sting) <sup>24,25</sup>		16-year-old female. Swimming at beach. Stung by a jellyfish on arm. Immediate pain, slowly fading. Has some redness and swelling on arm, itchy. No trouble breathing, no abdominal pain. No nausea or vomiting. If asked- jellyfish was blue. Chief complaint = jellyfish sting	Yes	Yes



Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Conjunctivitis <sup>1,26</sup>	A 14-year-old boy with no significant past medical history presents 3 days after developing a red, irritated right eye that spread to the left eye today. He has watery discharge from both eyes, and they are stuck shut in the morning. He reports recent upper respiratory symptoms and that several children at his day camp recently had pink eye. He denies significant pain or light sensitivity and does not wear contact lenses. On examination, his pupils are equal and reactive, and he has a right-sided, tender pre-auricular lymph node. Penlight examination does not reveal any corneal opacity.	14-year-old male. 3 days with red irritated eye (spread from right to left eye). Eyes have pus from ducts. Has recently had cold like symptoms. No pain or light sensitivity. Chief complaint = red eye	Yes	Yes
Cradle cap <sup>27</sup>		4-week-old male. Crusty yellowish skin appearing on head and behind ears, which looks waxy. Chief complaint = rash	Yes	Yes
Dysmenorrhoea <sup>28</sup>		15-year-old female. Monthly mid-abdominal pain appears with period. Pain radiates to back. Headache. Chief complaint = period pain	Yes	Yes
Head lice <sup>29</sup>		4-year-old female. Has very itchy head. Can see small white dots in her hair near scalp, especially behind ears. Some white dots are on hair strands and don't brush off. Chief complaint = itchy head	Yes	Yes
Herpes simplex virus type 1 (cold sore) <sup>30,31</sup>		17-year-old male. Blisters appearing on lips and just inside of mouth. Before blisters appeared, he felt tingling and was itchy. Chief complaint = lip blisters	Yes	Yes
Plantar warts <sup>32</sup>		20-year-old male. Hard skin-coloured lumps on the sole of the foot. Painful to walk on. Some have a black dot in the centre. Chief complaint = skin lumps	Yes	Yes
Stinging nettle <sup>33</sup>		25-year-old male has been bush walking. Brushed against a plant, and now has burning sensation on left arm and leg. Skin appears red, slightly swollen and itchy. (If asked, there are fine needle like hairs in the skin). Chief complaint = burning skin	No	No
Threadworm ( <i>Strongyloides</i> ) <sup>34</sup>		5-year-old male. Itchy bottom. White threads appearing in stools. Grumpy and tired. Chief complaint = itchy bottom.	Yes	Yes

Diagnosis	Vignette in Semigran study <sup>1</sup>	Vignette in lay terminology, as used in our investigation*	Common condition	Is it likely the diagnosis will appear in top 3 results?
Tinea pedis (athlete's foot, fungal infection) <sup>35</sup>		33-year-old male. Scaly skin between the toes. The skin is Itchy and has an odour. Skin goes soft and white when wet. Chief complaint = rash	Yes	Yes

\* New scenarios (ie, not based on Semigran article) consist only of signs and symptoms and do not include full narrative descriptions.

ALT = alanine aminotransferase; BP = blood pressure; CHF = congestive heart failure; COPD = chronic obstructive pulmonary disease; EKG = electrocardiogram; ER = emergency room (or emergency department); GORD = gastro-oesophageal reflux disease; INR = international normalised ratio; MRI = magnetic resonance imaging; URTI = upper respiratory tract infection.

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**Table 2. Symptom checkers included in the study**

	Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
<b>Internet-based</b>				
1	AARP Health Tools Symptoms <a href="http://healthtools.aarp.org/symptomsearch">http://healthtools.aarp.org/symptomsearch</a>	No	10	NA
2	Alberta Check Your Symptoms (Healthwise) <a href="https://myhealth.alberta.ca/Health/pages/symptom-checker.aspx">https://myhealth.alberta.ca/Health/pages/symptom-checker.aspx</a>	Yes	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Seek care now</li> <li>• Seek care today</li> <li>• Make an appointment</li> <li>• Try home treatment</li> </ul>
3	APWU Health Plan Helpful tool: Symptom Checker (American Postal Workers Union Health Plan) <a href="https://www.apwuhp.com/members/for-all-members/symptom-checker">https://www.apwuhp.com/members/for-all-members/symptom-checker</a>	No	90	NA
4	Buoy Symptom Checker <a href="https://buoyhealth.com">https://buoyhealth.com</a>	No	3	NA
5	Children's Wisconsin Symptom Checker <a href="https://www.chw.org/health-information/symptom-checker">https://www.chw.org/health-information/symptom-checker</a>	No	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Go to ER now</li> <li>• Call doctor or seek care now</li> <li>• Call doctor within 24 hours</li> <li>• Call doctor during office hours</li> <li>• Self-care at home</li> </ul>
6	Drugs.com Symptom Checker <a href="https://www.drugs.com/symptom-checker">https://www.drugs.com/symptom-checker</a>	Yes	5	<ul style="list-style-type: none"> <li>• Call 911 immediately</li> <li>• Emergency care now</li> <li>• Call for medical help immediately; you may need to be examined today</li> <li>• Call your doctor; contact your doctor or go to a local emergency room right away for evaluation; you need immediate medical evaluation</li> <li>• You should arrange an evaluation with your doctor</li> <li>• Self-treatment</li> </ul>

		Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
7	Everyday Health Healthy Living Symptom Checker <a href="https://everydayhealth.com/symptom-checker">https://everydayhealth.com/symptom-checker</a>	An American life-style and medical health information site. Adults only site. SC powered by Infermedica in Poland. Uses artificial intelligence.	No	8	<ul style="list-style-type: none"> <li>• Immediate medical attention recommended</li> <li>• Prompt medical attention recommended</li> <li>• May require medical attention</li> </ul>
8	Family Doctor Symptom Checker <a href="https://familydoctor.org/your-health-resources/health-tools/symptom-checker">https://familydoctor.org/your-health-resources/health-tools/symptom-checker</a>	Powered by American Academy of Family Physicians. A physician-reviewed SC.	Yes	5	<ul style="list-style-type: none"> <li>• Emergency; call your doctor right away or go to the hospital</li> <li>• Urgent; call your doctor right away</li> <li>• Self-care</li> </ul>
9	Healthdirect Symptom Checker <a href="https://healthdirect.gov.au/symptom-checker">https://healthdirect.gov.au/symptom-checker</a>	A national, Australian government-owned not-for-profit organisation. Uses NHS algorithms.	No	NA	<ul style="list-style-type: none"> <li>• Call an ambulance</li> <li>• Go to the emergency department</li> <li>• See your GP today</li> <li>• Call a nurse immediately</li> <li>• See your GP in the next few days</li> <li>• Speak to a nurse</li> <li>• Speak to a nurse about your child</li> <li>• See your GP in the next few days</li> <li>• See your GP routinely</li> <li>• See an optometrist or GP soon</li> <li>• Speak to your pharmacist</li> <li>• Look after yourself at home</li> </ul>
10	Healthline Symptom Checker <a href="https://www.healthline.com/symptom-checker">https://www.healthline.com/symptom-checker</a>	An American health information website.	Yes	172	NA
11	HealthLinkBC Check Your Symptoms <a href="https://www.healthlinkbc.ca/health-topics/hwsxchk">https://www.healthlinkbc.ca/health-topics/hwsxchk</a>	Provides access to non-emergency health information and advice in British Columbia, Canada. SC powered by Healthwise.	No	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Seek care now</li> <li>• Seek care today</li> <li>• Make an appointment</li> <li>• Try home treatment</li> </ul>
12	Health Status Symptom Checker <a href="https://www.healthstatus.com/symptom-checker">https://www.healthstatus.com/symptom-checker</a>	Privately held American company, using the SC algorithms from Isabel, therefore uses artificial intelligence. General health and well-being site.	No	33	NA

	Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
13	Healthy Children.org KidsDoc Symptom Checker <a href="https://healthychildren.org/english/tips-tools/symptom-checker/Pages/default.aspx">https://healthychildren.org/english/tips-tools/symptom-checker/Pages/default.aspx</a>	Yes	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Go to ER now</li> <li>• Call doctor or seek care now</li> <li>• Call doctor within 24 hours</li> <li>• Call doctor during office hours</li> <li>• Self-care at home</li> </ul>
14	Isabel <a href="https://symptomchecker.isabelhealthcare.com/suggest_diagnoses_advanced/landing_page">https://symptomchecker.isabelhealthcare.com/suggest_diagnoses_advanced/landing_page</a>	Yes	10	<ul style="list-style-type: none"> <li>• Walk in clinic/telemedicine</li> <li>• Family physician/urgent care clinic/minor injuries</li> <li>• Emergency medicine</li> </ul>
15	John Hopkins All Children's Hospital Symptom Checker <a href="https://www.hopkinsallchildrens.org/Patients-Families/Patient-Family-Resources/Symptom-Checker#!/index/child/body">https://www.hopkinsallchildrens.org/Patients-Families/Patient-Family-Resources/Symptom-Checker#!/index/child/body</a>	No	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Go to ER now</li> <li>• Call doctor or seek care now</li> <li>• Call doctor within 24 hours</li> <li>• Call doctor during office hours</li> <li>• Self-care at home</li> </ul>
16	Mayo Clinic Symptom Checker: <a href="https://www.mayoclinic.org/symptom-checker/select-symptom/itt-20009075">https://www.mayoclinic.org/symptom-checker/select-symptom/itt-20009075</a>	Yes	15	NA
17	MedicineNet Symptom Checker: Symptoms & Signs A-Z <a href="https://www.medicinenet.com/symptoms_and_signs/symptomchecker.htm#introView">https://www.medicinenet.com/symptoms_and_signs/symptomchecker.htm#introView</a>	No	110	NA
18	Michigan Medicine Symptom Checker (University of Michigan) <a href="https://uofmhealth.org/health-library/sx">https://uofmhealth.org/health-library/sx</a>	No	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Seek care now</li> <li>• Seek care today</li> <li>• Make an appointment</li> <li>• Try home treatment</li> </ul>
19	Patient Symptom Checker <a href="https://patient.info/symptom-checker">https://patient.info/symptom-checker</a>	No	17	NA
20	Right Diagnosis from healthgrades Symptom Checker <a href="https://symptoms.rightdiagnosis.com">https://symptoms.rightdiagnosis.com</a>	No	676	NA

		Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
21	RxList Symptom Checker powered by WebMD <a href="https://rxlist.com/symptoms-checker/symptom.htm#introView">https://rxlist.com/symptoms-checker/symptom.htm#introView</a>	Founded by pharmacists, RxList is an American online medical resource. Acquired by WebMD in 2004.	No	110	NA
22	St Luke's Symptom Checker <a href="https://www.stlukesonline.org/symptom-checker">https://www.stlukesonline.org/symptom-checker</a>	Paediatrics only site. (Healthy Children; John Hopkins All Children's Hospital; St Luke's; Children's Wisconsin identical; however, St Luke's does not credit the American Academy of Pediatrics for powering their site and has a slightly different interface to Healthy Children). American IP address.	No	NA	<ul style="list-style-type: none"> <li>• Call 911 now</li> <li>• Go to ER now</li> <li>• Call doctor or seek care now</li> <li>• Call doctor within 24 hours</li> <li>• Call doctor during office hours</li> <li>• Self-care at home</li> </ul>
23	Symcat.com What is bothering you today? <a href="http://www.symcat.com">www.symcat.com</a>	An American based triage tool; based on patient data records.	No	6	<ul style="list-style-type: none"> <li>• Emergency Room</li> <li>• Urgent care</li> <li>• Primary care</li> <li>• Retail clinic</li> </ul>
24	Symptomate <a href="https://symptomate.com/diagnosis/en/#0-66">https://symptomate.com/diagnosis/en/#0-66</a>	An online health-oriented service developed by Infermedica in Poland. Adults only site. Uses artificial intelligence. (IP address is based in America however Symptomate is copyright of Infermedica).	Yes	8	<ul style="list-style-type: none"> <li>• Immediate medical attention recommended, contacting a medical professional or emergency services is advised. Prompt medical attention recommended, consulting a medical professional is strongly advised</li> <li>• May require medical attention, symptoms you've reported are rarely sign of a severe condition. However, if you are concerned about your health or your symptoms persist or worsen, we advise to contact a medical professional</li> </ul>
25	WebMD Symptom Checker <a href="https://symptoms.webmd.com/default.htm">https://symptoms.webmd.com/default.htm</a>	An American online information site pertaining to health and well-being. Owns and operates RxList and MedicineNet.	Yes	30	NA
26	What's My Diagnosis <a href="http://www.whatsmydiagnosis.com">http://www.whatsmydiagnosis.com</a>	An analytically driven medical diagnostic tool. Only 100 symptoms and diseases included. No information provided about the company or where it is based. IP address shows California, USA.	No	33	NA

	Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options	
<b>Mobile apps</b>					
27	<p>Doctor Diagnose Symptoms Check (Google Play)</p> <p><a href="https://play.google.com/store/apps/details?id=com.appcolliders.doctordiagnose">https://play.google.com/store/apps/details?id=com.appcolliders.doctordiagnose</a></p>	Appcolliders built the Doctor Diagnose Symptoms Check; there is no information on who has designed and contributed to the App. The email address is appcolliders@gmail.com. There is a web page for Appcolliders, and that IP address is based in Israel.	Yes	3	<ul style="list-style-type: none"> <li>• Seek out medical assistance immediately</li> <li>• Consult your doctor immediately</li> <li>• Call a doctor immediately</li> <li>• Consult your doctor</li> </ul>
28	<p>Drugs.com Medication Guide Symptom Checker (Google Play)</p> <p><a href="https://play.google.com/store/apps/details?id=com.drugscm.app">https://play.google.com/store/apps/details?id=com.drugscm.app</a></p>	See no. 6	Yes	5	<ul style="list-style-type: none"> <li>• Call 911 immediately</li> <li>• Emergency care now</li> <li>• Call for medical help immediately; you may need to be examined today</li> <li>• Call your doctor</li> <li>• Contact your doctor or go to a local emergency room right away for evaluation</li> <li>• You need immediate medical evaluation; you should arrange an evaluation with your doctor</li> <li>• Self-treatment</li> </ul>
29	ePain Assist Symptom Checker (Apple App) [no longer available]	General health information and pain app. The site gives no information on where it is based or who contributes to the page. Assume it is American based as they have an epainassist.com Facebook page which supplied no further information. Their webpage displays a contact address as St. Petersburg, USA.	No	13	NA
30	<p>ePain Assist Symptom Checker (Google Play)</p> <p><a href="https://play.google.com/store/apps/details?id=com.epainassist.symptomchecker">https://play.google.com/store/apps/details?id=com.epainassist.symptomchecker</a></p>	General health information and pain app. The site gives no information on where it is based or who contributes to the page. Assume it is American based as they have an epainassist.com Facebook page which supplied no further information. Their webpage displays a contact address as St. Petersburg, USA.	No	13	NA



		Description	Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
31	Healthdirect Australian health advice (Apple App) <a href="https://apps.apple.com/au/app/healthdirect/id1021494621">https://apps.apple.com/au/app/healthdirect/id1021494621</a>	See no. 9	No	NA	<ul style="list-style-type: none"> <li>• Call an ambulance</li> <li>• Go to the emergency department</li> <li>• See your GP today</li> <li>• Call a nurse immediately</li> <li>• See your GP in the next few days</li> <li>• Speak to a nurse</li> <li>• Speak to a nurse about your child</li> <li>• See your GP in the next few days</li> <li>• See your GP routinely</li> <li>• See an optometrist or GP soon</li> <li>• Speak to your pharmacist</li> <li>• Look after yourself at home</li> </ul>
32	Symptify (Google Play) no longer available	An American online health assessment tool using a customised algorithmic engine. Provides medical education, information, advice and facility locator. Can pre-notify care facilities of users impending arrival.	Yes	10	NA
33	Symptomate Check your symptoms (Apple App) <a href="https://apps.apple.com/au/app/symptomate/id837725433">https://apps.apple.com/au/app/symptomate/id837725433</a>	See no. 24	Yes	8	<ul style="list-style-type: none"> <li>• Immediate medical attention recommended, contacting a medical professional or emergency services is advised. Prompt medical attention recommended, consulting a medical professional is strongly advised</li> <li>• May require medical attention, symptoms you've reported are rarely sign of a severe condition. However, if you are concerned about your health or your symptoms persist or worsen, we advise to contact a medical professional</li> </ul>

	Description		Included in Semigran study <sup>1</sup>	Maximum diagnoses	Triage options
34	Symptomate – Symptom checker (Google Play) <a href="https://play.google.com/store/apps/details?id=com.symptomate.mobile">https://play.google.com/store/apps/details?id=com.symptomate.mobile</a>	See no. 24	Yes	8	<ul style="list-style-type: none"> <li>• Immediate medical attention recommended, contacting a medical professional or emergency services is advised. Prompt medical attention recommended, consulting a medical professional is strongly advised</li> <li>• May require medical attention, symptoms you've reported are rarely sign of a severe condition. However, if you are concerned about your health or your symptoms persist or worsen, we advise to contact a medical professional</li> </ul>
35	WebMD: Symptoms, Doctors, & Rx (Apple App) <a href="https://apps.apple.com/au/app/webmd-symptoms-doctors-rx/id295076329">https://apps.apple.com/au/app/webmd-symptoms-doctors-rx/id295076329</a>	See no. 25	Yes	30	NA
36	WebMD: Check Symptoms, Find Doctors, & Rx Savings (Google Play) <a href="https://play.google.com/store/apps/details?id=com.webmd.android">https://play.google.com/store/apps/details?id=com.webmd.android</a>	See no. 25	Yes	30	NA

NA = not applicable.

AARP = American Association of Retired Persons; APWU = American Postal Workers Union Health Plan; ER = Emergency room (or emergency department); GP = General practitioner; HealthLinkBC = HealthLink British Columbia; IP = Internet protocol; NHS = National Health Service; Symcat = System-based computer assisted triage; UK = United Kingdom; USA = United States of America.

**Table 3. Diagnostic symptom checkers: differences between triage categories in proportions of correct diagnoses, by severity of patient condition in vignette**

	Mean difference, percentage points (95% confidence interval)
<b>Correct diagnosis listed first</b>	
Emergency	Reference
Urgent	-17.6 (-30.7 to -4.0)
Non-urgent	-12.9 (-26.0 to 0.27)
Self-care	-6.1 (-19.3 to 7.0)
Urgent	Reference
Non-urgent	4.7 (-8.5 to 17.8)
Self-care	11.4 (-1.7 to 24.6)
Non-urgent	Reference
Self-care	6.8 (-6.4 to 19.9)
<b>Correct diagnosis listed in top 3</b>	
Emergency	Reference
Urgent	-22.3 (-36.9 to -7.9)
Non-urgent	-17.6 (-32.0 to -3.1)
Self-care	-3.0 (-17.5 to 11.4)
Urgent	Reference
Non-urgent	4.8 (-9.7 to 19.3)
Self-care	19.3 (4.8 to 33.8)
Non-urgent	Reference
Self-care	14.5 (0.03 to 29.0)
<b>Correct diagnosis listed in top 10</b>	
Emergency	Reference
Urgent	-19.8 (-34.2 to -5.6)
Non-urgent	-20.3 (-34.57 to -6.0)
Self-care	-3.6 (-17.9 to 10.8)
Urgent	Reference
Non-urgent	-0.41 (-14.7 to 13.9)
Self-care	16.3 (2.0 to 30.6)
Non-urgent	Reference
Self-care	16.7 (2.4 to 31.0)

**Table 4. Accuracy of diagnosis advice for each symptom checker**

Symptom checker	Correct diagnosis		
	Listed first	Listed in top 3	Listed in top 10
	Number*	Number*	Number*
AARP Health Tools†	15/48 (31%)	18/48 (38%)	19/48 (40%)
Alberta Healthwise (My Health Alberta)	Na	na	na
American Postal Workers Union Health Plan	12/48 (25%)	17/48 (35%)	19/48 (40%)
Buoy Health	17/48 (35%)	24/48 (50%)	24/48 (50%)
Children's Hospital of Wisconsin	Na	na	na
Drugs.com	16/43 (37%)	24/43 (56%)	24/43 (56%)
Everyday Health	16/31 (52%)	22/31 (71%)	22/31 (71%)
Family Doctor	19/48 (40%)	22/48 (46%)	22/48 (46%)
Healthdirect	Na	na	na
Healthline	13/48 (27%)	22/48 (46%)	29/48 (60%)
Health Link BC	Na	na	na
Health Status	17/44 (37%)	26/44 (59%)	32/44 (73%)
Healthy Children	Na	na	na
Isabel	16/48 (33%)	30/48 (63%)	37/48 (77%)
John Hopkins All Children's Hospital	Na	na	na
Mayo Clinic	16/42 (38%)	25/42 (60%)	28/42 (67%)
MedicineNet	13/48 (27%)	26/48 (54%)	32/48 (67%)
Michigan Medicine (University of Michigan)	Na	na	na
Patient.info	21/48 (44%)	27/48 (56%)	30/48 (63%)
Right Diagnosis	6/44 (14%)	16/44 (36%)	18/44 (41%)
RxList	15/48 (31%)	28/48 (58%)	34/48 (71%)
St Luke's online	Na	na	na
Symcat	17/46 (37%)	22/46 (48%)	30/46 (65%)
Symptomate	19/31 (61%)	24/31 (77%)	25/31 (81%)
WebMD	25/47 (53%)	33/47 (70%)	36/47 (77%)
What's My Diagnosis	8/43 (19%)	10/43 (23%)	13/43 (30%)
Doctor Diagnose (Google)	12/36 (33%)	16/36 (44%)	16/36 (44%)
Drugs.com (Google)	19/43 (44%)	25/43 (58%)	25/43 (58%)
ePain Assist (Apple)	6/43 (14%)	12/43 (28%)	17/43 (40%)
ePain Assist (Google)	5/43 (12%)	10/43 (23%)	14/43 (33%)
Healthdirect (Apple)	Na	na	na
Symptify (Google)	11/46 (24%)	14/46 (30%)	14/46 (30%)
Symptomate (Apple)	19/31 (61%)	24/31 (77%)	25/31 (81%)
Symptomate (Google)	19/31 (61%)	24/31 (77%)	25/31 (81%)
WebMD (Apple)	24/47 (51%)	32/47 (68%)	35/47 (74%)
WebMD (Google)	25/47 (53%)	33/47 (70%)	36/47 (77%)

AARP = American Association of Retired Persons; na = not applicable: symptom checker does not provide diagnostic advice.

\* Numbers of correct vignette evaluations and applicable evaluations. Some vignettes could not be applied to a given symptom checker (see Methods).

**Table 5. Diagnostic symptom checkers: differences between triage categories in proportions of correct triage advice, by severity of patient condition in vignette**

	Mean difference, percentage points (95% confidence interval)
Emergency	Reference
Urgent	-1.5 (-24.0 to 20.9)
Non-urgent	36.6 (14.2 to 59.1)
Self-care	24.6 (2.1 to 47.0)
Urgent	Reference
Non-urgent	38.2 (15.7 to 60.6)
Self-care	26.1 (3.7 to 48.6)
Non-urgent	Reference
Self-care	-12.0 (-34.5 to 10.4)

**Table 6. Accuracy of triage advice for each symptom checker**

Symptom checker	Correct triage advice				
	All cases	Emergency care required	Urgent care required	Non-urgent care reasonable	Self-care reasonable
	Number*	Number*	Number*	Number*	Number*
AARP Health Tools <sup>†</sup>	na	na	na	na	na
Alberta Healthwise (My Health Alberta)	27/48 (56%)	8/13 (62%)	10/14 (71%)	2/11 (18%)	7/10 (70%)
American Postal Workers Union Health Plan	na	na	na	na	na
Buoy Health	§	§	§	§	§
Children's Hospital of Wisconsin	8/17 (47%)	1/2 (50%)	3/3 (100%)	0/5	4/7 (57%)
Drugs.com	22/43 (51%)	7/13 (54%)	7/14 (50%)	6/8 (75%)	2/8 (25%)
Everyday Health	17/31 (55%)	9/11 (82%)	7/11 (64%)	1/6 (17%)	0/3
Family Doctor	15/48 (31%)	5/13 (38%)	4/14 (29%)	5/11 (45%)	1/10 (10%)
Healthdirect	28/46 (61%)	9/12 (75%)	9/13 (69%)	4/11 (36%)	6/10 (60%)
Healthline	na	na	na	na	na
Health Link BC	26/48 (54%)	8/13 (62%)	10/14 (71%)	2/11 (18%)	6/10 (60%)
Health Status	na	na	na	na	na
Healthy Children	8/17 (47%)	1/2 (50%)	3/3 (100%)	0/5	4/7 (57%)
Isabel	23/48 (48%)	13/13 (100%)	7/14 (50%)	3/11 (27%)	0/10
John Hopkins All Children's Hospital	8/17 (47%)	1/2 (50%)	3/3 (100%)	0/5	4/7 (57%)
Mayo Clinic	na	na	na	na	na
MedicineNet	na	na	na	na	na
Michigan Medicine (University of Michigan)	26/45 (58%)	7/11 (64%)	10/13 (77%)	2/11 (18%)	7/10 (70%)
Patient.info	na	na	na	na	na
Right Diagnosis	na	na	na	na	na
RxList	na	na	na	na	na
St Luke's online	8/17 (47%)	1/2 (50%)	3/3 (100%)	0/5	4/7 (57%)
Symcat	17/46 (40%)	7/13 (54%)	0/14	10/10 (100%)	0/9
Symptomate	16/31 (52%)	9/11 (82%)	6/11 (55%)	0/6	1/3 (33%)
WebMD	na	na	na	na	na
What's My Diagnosis	na	na	na	na	na
Doctor Diagnose (Google)	6/35 (17%)	1/13 (8%)	5/13 (38%)	0/4	0/5
Drugs.com (Google)	23/43 (53%)	7/13 (54%)	7/14 (50%)	7/8 (88%)	2/8 (25%)
ePain Assist (Apple)	na	na	na	na	na
ePain Assist (Google)	na	na	na	na	na
Healthdirect (Apple)	28/46 (61%)	9/12 (75%)	9/13 (69%)	4/11 (36%)	6/10 (60%)
Symptify (Google)	§	§	§	§	§
Symptomate (Apple)	16/31 (52%)	9/11 (82%)	6/11 (55%)	0/6	1/3 (33%)
Symptomate (Google)	16/31 (52%)	9/11 (82%)	6/11 (55%)	0/6	1/3 (33%)
WebMD (Apple)	na	na	na	na	na
WebMD (Google)	na	na	na	na	na

na = not applicable: symptom checker does not provide triage advice.

\* Numbers of correct vignette evaluations and applicable evaluations. Some vignettes could not be applied to a given symptom checker (see Methods).

§ Triage advice not assessed, as it differed according to potential diagnosis.