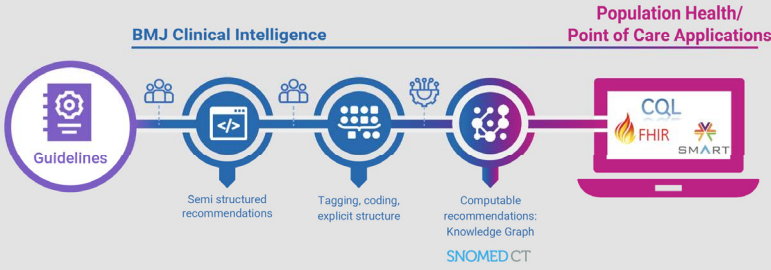


EXHIBIT P

EXHIBIT P - Claim Chart for U.S. Patent No. 12,518,882

#	'882 Patent Claim	Accused Product
1pre	1. A computer system for integrating medical evidence text into a computational form, said computer system comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, for integrating medical evidence text into a computational form. The BMJ stated in its presentation, it used "rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content" to create BMJ Clinical Intelligence ("CI"). (2024 - BMJ Clinical Intelligence Presentation 7.4.24 ("BMJ Presentation") at 17.) On the cover page of the CI Presentation, BMJ marketed CI as a tool for "delivering computable evidence at scale." (BMJ Presentation at 1.) This indicates the BMJ has "continuously updated" its "evidence-based content" into "computable evidence at scale." (BMJ Presentation at 1.) (BMJ Presentation at 1.) In its Clinical Intelligence White Paper entitled "Why the BMJ Knowledge Graph," BMJ also touted that it is "well-positioned to lead in this work [of knowledge graph]" because "BMJ has published in the field of medicine and healthcare since 1840." (2024 - BMJ Why BMJ Knowledge Graph paper -

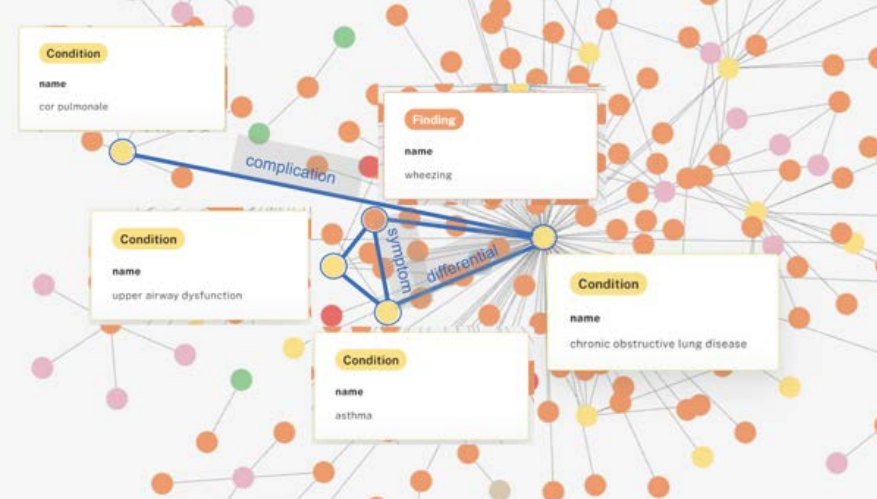
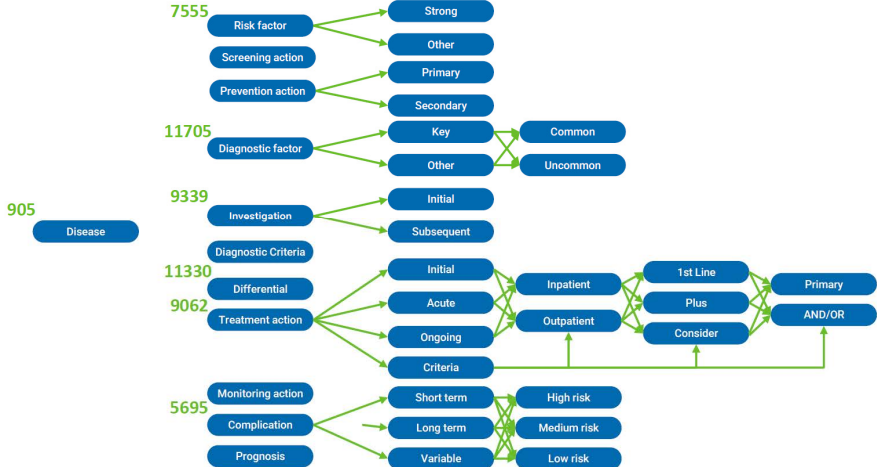
#	'882 Patent Claim	Accused Product
		BMJ_CI_White-Paper_WEB-1 (“BMJ White Paper”) at 7.) Its publications are examples of “medical evidence text” that is recited in the preamble. BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been providing digital clinical decision support for over fifteen years. It has now built an expert knowledge engineering team with deep experience in the translation process from guidelines to computable evidence at scale across whole domains – from clinical medicine to population health. The result is computable evidence that can be applied at the point of care and in population health management for each and every clinical decision made. (BMJ White Paper at 7.) Hence, BMJ has integrated “medical evidence text” (e.g., its papers and journals) into a computational form (e.g., Clinical Intelligence). What is BMJ Clinical Intelligence?  • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content (BMJ Presentation at 17.)
1a	one or more processors; and memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to:	BMJ Clinical Intelligence comprises one or more processors; and memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to perform the claimed steps that follow. Based on the figure below from BMJ’s Presentation, Clinical Intelligence is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate Clinical Intelligence.

#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.)
1b	receive electronic text in a plurality of medical evidence sources, said electronic text pertaining to a plurality of medical conditions,	BMJ Clinical Intelligence receives electronic text in a plurality of medical evidence sources, said electronic text pertaining to a plurality of medical conditions. BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been providing digital clinical decision support for over fifteen years. It has now built an expert knowledge engineering team with deep experience in the translation process from guidelines to computable evidence at scale across whole domains – from clinical medicine to population health. The result is computable evidence that can be applied at the point of care and in population health management for each and every clinical decision made. (BMJ White Paper at 7.) The paragraph above in BMJ’s Clinical Intelligence White Paper indicates that BMJ relies on its “clinical journals” to provide computable evidence. The papers in the “clinical journals” include “electronic text from published content in a plurality of medical evidence sources” that are recited in the claim. The electronic text received by BMJ also pertains to various medical conditions. Three examples of medical publications by BMJ Open that pertain to different medical conditions are discussed.

#	'882 Patent Claim	Accused Product
		“Publication 1” is entitled, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” which discussed various respiratory and non respiratory conditions. (Publication 1 at 3.) “Publication 2” is entitled, “Association between rhinovirus wheezing illness and the development of childhood asthma: a meta-analysis,” which discussed rhinovirus wheezing illness and asthma. (Publication 2 at 1.) “Publication 3” is entitled, “Working in a cold environment, feeling cold at work and chronic pain: a cross-sectional analysis of the Tromsø Study,” which discussed cold and chronic pain. (Publication 3 at 1.)
1c	wherein at least a subset of said medical evidence sources includes a published journal;	At least a subset of said medical evidence sources from which BMJ Clinical Intelligence receives electronic text includes a published journal.  BMJ Journals https://journals.bmj.com ; BMJ Journals: Home Our peer reviewed journals include high impact, selective titles that publish innovative research, comprehensive reviews, educational content and case studies. <i>BMJ Journals</i>, available at https://journals.bmj.com/ (last visited September 2, 2026) (“Website: BMJ Journals”). From the title of BMJ Journals website, BMJ operates a number of journals. The three medical publication examples are published by BMJ Open. It is an “online, open access journal,” which is one of the examples of a published journal.

#	'882 Patent Claim	Accused Product
		  BMJ Open is an online, open access journal, dedicated to publishing medical research from all disciplines and therapeutic areas. <i>BMJ Open</i>, available at https://bmjopen.bmj.com/ (last visited September 2, 2026) (“Website: BMJ Open”).
1d	retrieve a plurality of diagnostic factors that are associated with one or more of said plurality of medical conditions,	BMJ Clinical Intelligence retrieves a plurality of diagnostic factors that are associated with one or more of the plurality of medical conditions. BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been providing digital clinical decision support for over fifteen years. It has now built an expert knowledge engineering team with deep experience in the translation process from guidelines to computable evidence at scale across whole domains – from clinical medicine to population health. The result is computable evidence that can be applied at the point of care and in population health management for each and every clinical decision made. (BMJ White Paper at 7.)

#	'882 Patent Claim	Accused Product		
		What is BMJ Clinical Intelligence?  • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content (BMJ Presentation at 17.) The paragraph in the White Paper and the Presentation indicate BMJ uses “rigorous editorial methodology” to turn the electronic text of papers in clinical journals into “computable evidence in the form of a knowledge graph.” Below is a specific example of how BMJ extracts an association between a diagnostic factor and a medical condition from an electronic text to put such association into the knowledge graph of Clinical Intelligence. In Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition. <table><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr></table> In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and showed that “wheezing” is a “symptom” of “asthma.”	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma
Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma			

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) Knowledge Graph Architecture  (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” that are associated with “disease,” which is an example of a medical condition.

#	'882 Patent Claim	Accused Product
1e	wherein said medical evidence sources provide different taxonomies that arrange one or more said diagnostic factors and/or one or more said medical conditions in different hierarchies, and	The said medical evidence sources from which BMJ Clinical Intelligence receives electronic text provide different taxonomies that arrange one or more said diagnostic factors and/or one or more said medical conditions in different hierarchies. Below are two examples of medical evidence sources that are used by BMJ which have different taxonomies that arrange “wheezing” in different hierarchies. While “wheezing” is used as an example, BMJ’s Clinical Intelligence uses many different diagnostic factors and medical conditions that will equally meet this claim element. The first example of a medical evidence source is Publication 1. The first medical evidence source puts “wheezing-ill” in a first taxonomy that is based on the hierarchy of “classification of consultation.” See Figure 1 at the bottom of the screen capture.

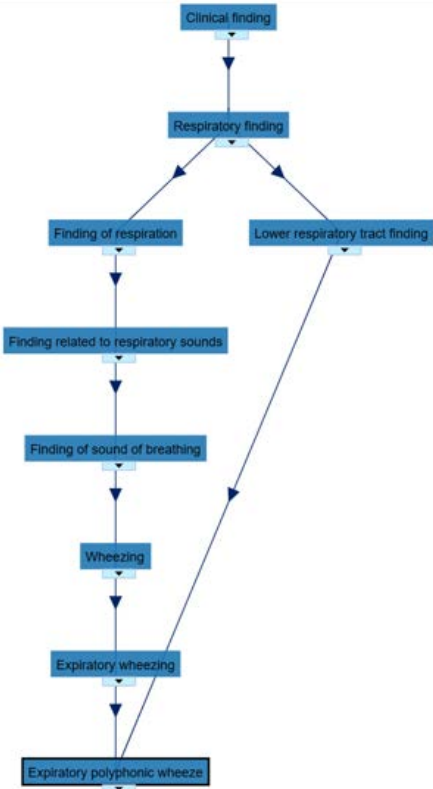
#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 3 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] B --> D[URTIs] B --> E[LRTIs] C --> F[Wheeze-ill] C --> G[Throat infections] C --> H[Otitis media] C --> I[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J, et al. <i>BMJ Open</i> 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 3

(Publication 1 at 3.)

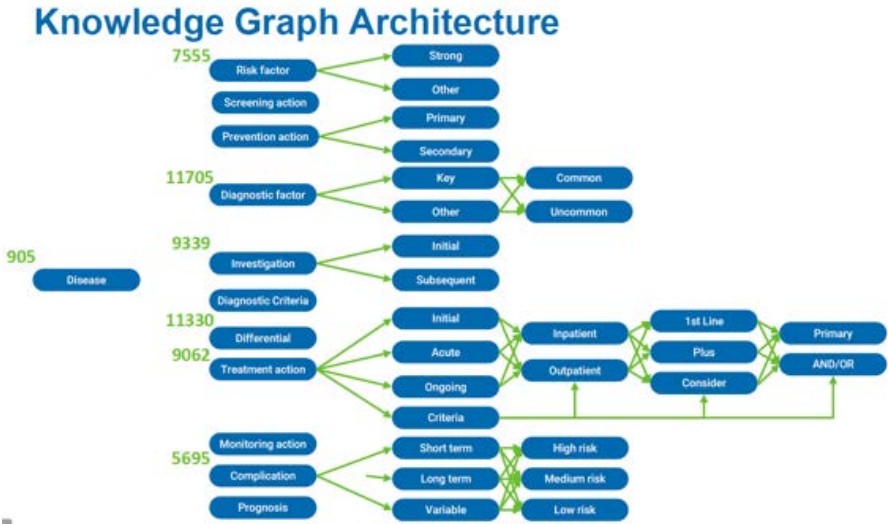
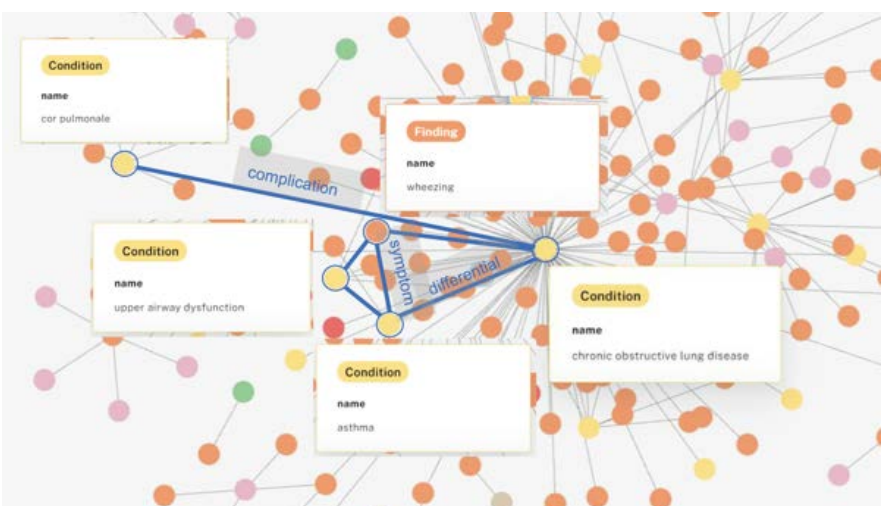
The first medical evidence source also puts “wheeze” and wheeze-related conditions into another taxonomy, which is a Table 1 that is based on the hierarchy of respiratory classification categories.

#	'882 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr><tr><td>Throat infections</td><td> ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear </td></tr><tr><td>Other respiratory</td><td> ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.) The second example of a medical evidence source is SNOMED CT, which is used by BMJ Clinical Intelligence as shown in the graph below.	Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma	Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear	Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
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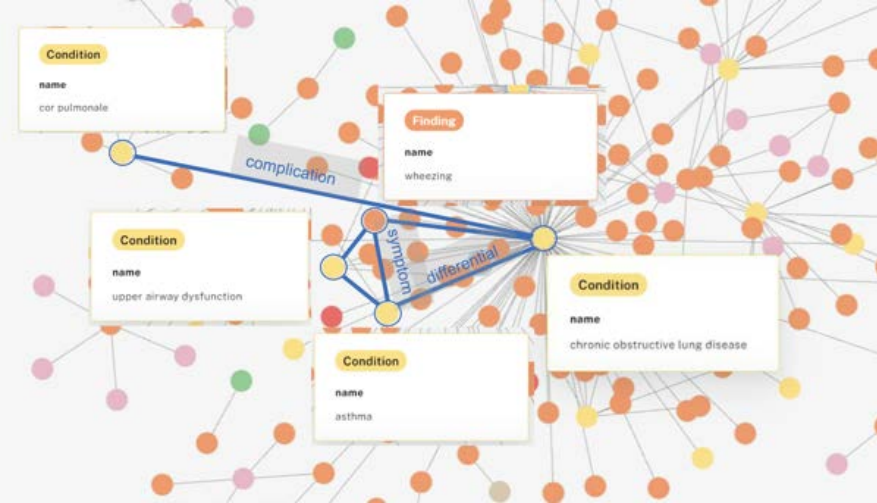
#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support (BMJ Presentation at 20.) SNOMED-CT is also explicitly mentioned in BMJ’s Clinical Intelligence website regarding the knowledge graph architecture as being linked to clinical coding systems. <i>Knowledge Graph Architecture</i>, available at https://clinicalintelligence.bmj.com/knowledge-graph-architecture/ (last visited September 2, 2026) (“BMJ Website: Knowledge Graph Architecture”). The second medical evidence source, SNOMED CT, puts “wheezing” in another taxonomy that is based on the hierarchy of respiratory sounds. The link below reveals a screen capture of the “Visualization” tab that illustrates this hierarchy.

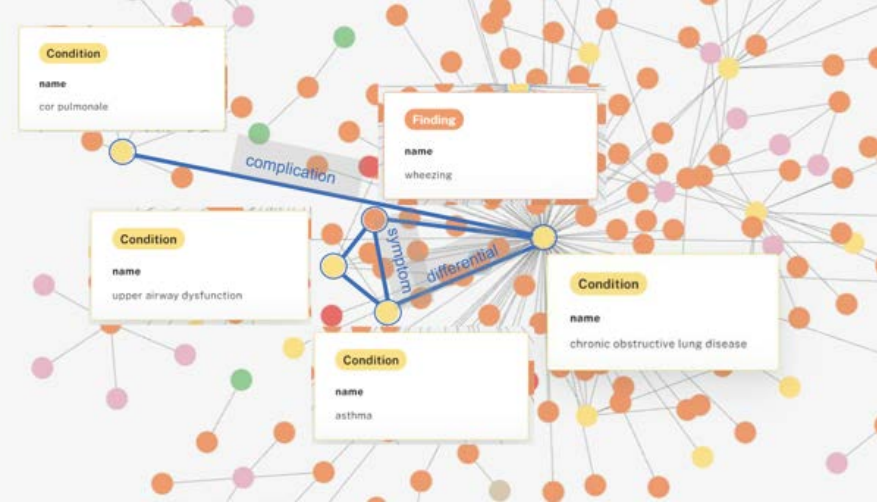
#	'882 Patent Claim	Accused Product
		 <pre> graph TD A[Clinical finding] --> B[Respiratory finding] B --> C[Finding of respiration] B --> D[Lower respiratory tract finding] C --> E[Finding related to respiratory sounds] E --> F[Finding of sound of breathing] F --> G[Wheezing] G --> H[Expiratory wheezing] H --> I[Expiratory polyphonic wheeze] D --> I </pre> SNOMED CT, US Edition, available at https://bioportal.bioontology.org/ontologies/SNOMEDCT?p=classes&conceptid=http%3A%2F%2Furl.bioontology.org%2Fontology%2FSNOMEDCT%2F301703002 (last visited September 2, 2026) (“Website: Bioportal”). In the two medical evidence sources above, wheezing is arranged in different hierarchies based on different concepts and is associated with different other diagnostic factors and/or medical conditions such as “throat infection” in the first medical evidence source (Publication 1), and “expiratory polyphonic wheeze” in the second medical evidence source (SNOMED).
1f	wherein a first diagnostic factor is discussed in part of said electronic text as	In BMJ Clinical Intelligence, a first diagnostic factor is discussed in part of said electronic text as being indicative of a first medical condition.

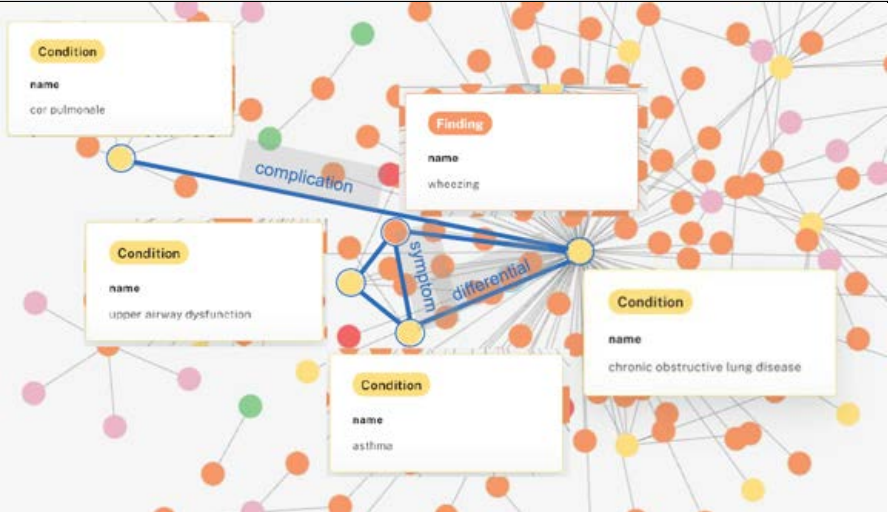
#	'882 Patent Claim	Accused Product
	being indicative of a first medical condition;	In Publication 1, the authors discussed that “wheeze” is indicative of “Asthma,” which is a medical condition. Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma (Publication 1 at 4.) While in this claim chart “wheeze” is used as an example of “first diagnostic factor” recited in the claim and “asthma” is used as “first medical condition” recited in the claim, BMJ’s Clinical Intelligence uses many more examples of diagnostic factors and medical conditions that will meet the claim element.
1g	create a graph database cross-linking said one or more diagnostic factors and said one or more medical conditions that are arranged in different hierarchies in said medical evidence sources;	BMJ Clinical Intelligence creates a graph database cross-linking said one or more diagnostic factors and said one or more medical conditions that are arranged in different hierarchies in said medical evidence sources. The knowledge graph in BMJ’s Clinical Intelligence includes cross-links to various diagnostic factors and medical conditions. For example, on page 32 of BMJ’s Clinical Intelligence Presentation, BMJ shows that the knowledge graph in Clinical Intelligence includes many “diagnostic factors” and many “disease[s],” which are medical conditions.

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) In a specific example of part of the knowledge graph in Clinical Intelligence, BMJ shows that medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma” are cross-linked to each other and also cross-linked to the diagnostic factor of “wheezing.”  (BMJ Presentation at 31.)

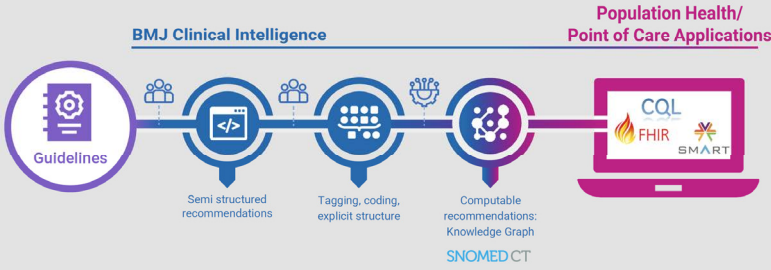
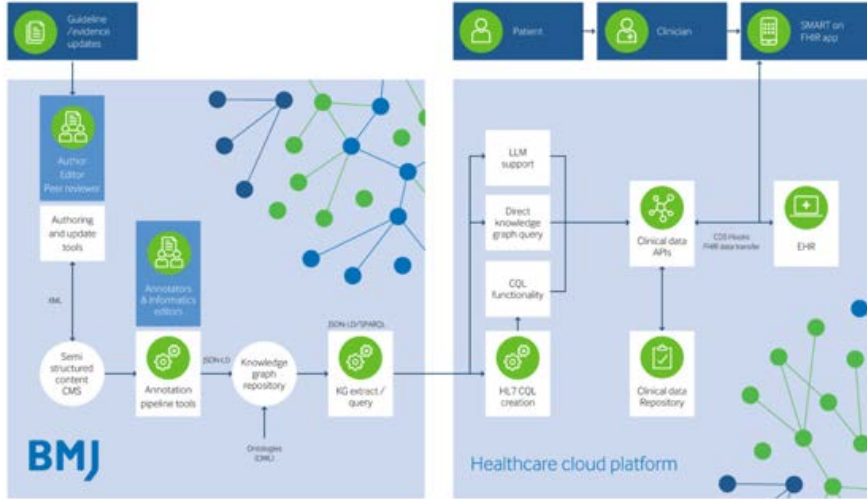
#	'882 Patent Claim	Accused Product																
		These medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma,” and the diagnostic factor of “wheezing” are arranged in different hierarchies in the original medical evidence sources. For example, “upper respiratory tract infections,” “chronic lung disease,” “asthma,” and “wheeze” are all included in the Table 1 of Publication 1. <table><tr><th colspan="2">Table 1 Respiratory classification categories and the conditions included in each</th></tr><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr><tr><td>Throat infections</td><td> ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear </td></tr><tr><td>Other respiratory</td><td> ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.)	Table 1 Respiratory classification categories and the conditions included in each		Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma	Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear	Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
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#	'882 Patent Claim	Accused Product
1h	store said one or more diagnostic factors and said one or more medical conditions that are cross-linked as separate entries in said graph database,	BMJ Clinical Intelligence stores said one or more diagnostic factors and said one or more medical conditions that are cross-linked as separate entries in said graph database. In the knowledge graph in Clinical Intelligence, medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma,” and the diagnostic factor of “wheezing” are cross-linked and are separate entries.  (BMJ Presentation at 31.)
1i	wherein a first entry of said first diagnostic factor indicative of said first medical condition is linked to a second entry of said first medical condition in said graph database, and	A first entry of said first diagnostic factor indicative of said first medical condition is linked to a second entry of said first medical condition in said graph database.

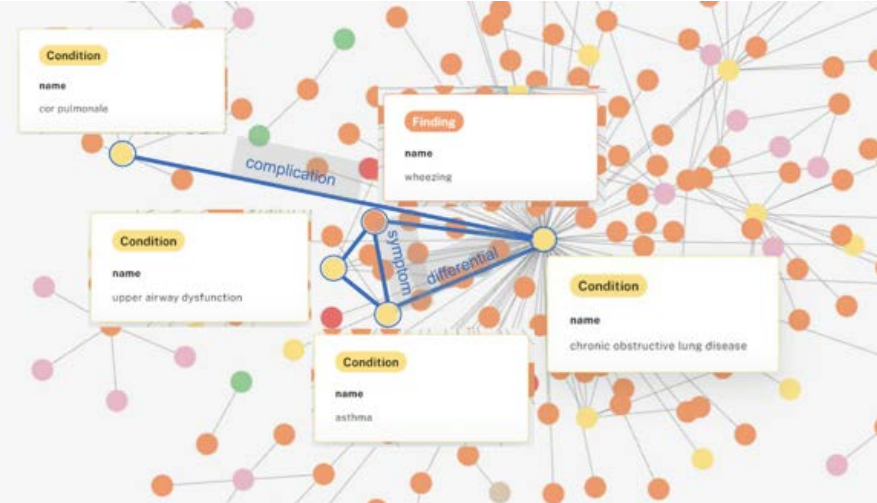
#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) Continuing to refer to page 31 of the Clinical Intelligence Presentation, in this claim chart, “wheezing” is used as an example of “said first diagnostic factor” and “asthma” is used as an example of “said first medical condition.” Hence, in the figure above, the “Finding” node representing “wheezing” is an example of a “first entry” recited in the claim and the “Condition” node representing “asthma” is an example of a “second entry.” The “Finding” node and the “Condition” node are directly linked. An article from Healthcare IT Today reporting on a discussion with Derrick Leung, Business Development Director at BMJ Group, describes that BMJ’s “knowledge graphs map the dynamic relationships between symptoms, diseases, and treatments to provide a more flexible and accurate diagnostic pathway.” <i>Why BMJ Group is Embedding 200 Years of Evidence Directly into Clinical Workflows</i>, available at https://www.healthcareittoday.com/2026/04/17/why-bmj-group-is-embedding-200-years-of-evidence-directly-into-clinical-workflows/ (last visited May 7, 2026) (“Healthcare IT Today Article”).
1j	wherein said first entry of said first diagnostic factor in said graph database does not include information specific to	The first entry of said first diagnostic factor in said graph database does not include information specific to said first medical condition represented by said second entry.

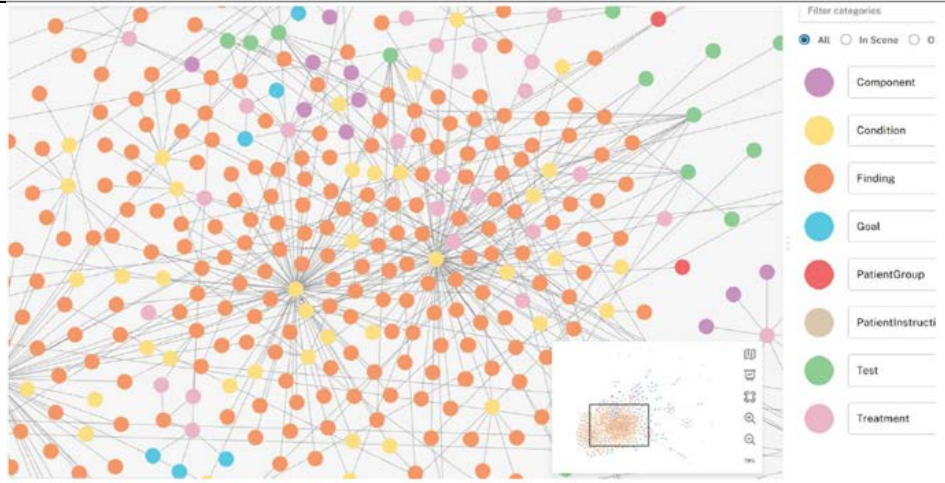
#	'882 Patent Claim	Accused Product
	said first medical condition represented by said second entry; and	 (BMJ Presentation at 31.) Continuing to refer to page 31 of the Clinical Intelligence Presentation, the first entry “Finding” node representing “wheezing” does not show any information specific to asthma and such “Finding” node is independent of the “Condition” node representing asthma. In addition, this “Finding” node is directly linked to three different “Condition” nodes: “upper airway dysfunction,” “asthma,” and “chronic obstructive lung disease.” As such, “Finding” node “does not include information specific to” “asthma” that is represented by that “Condition” node. The “Finding” node is linked to several other “Condition” nodes.

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32.) This figure about BMJ’s “knowledge graph architecture” also illustrates that diagnostic factor and “condition” (or “disease”) are separate and independent entries.
1k	establish one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said separate entries that are linked in said graph database in order to generate a healthcare determination.	BMJ Clinical Intelligence establishes one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said separate entries that are linked in said graph database in order to generate a healthcare determination. The illustration below includes evidence that Clinical Intelligence allows other software applications, such as CQL, FHIR, and SMART, to integrate with Clinical Intelligence’s knowledge graph. (BMJ Presentation at 20 and BMJ CI website) Hence, BMJ has established one or more APIs to integrate Clinical Intelligence with other software applications.

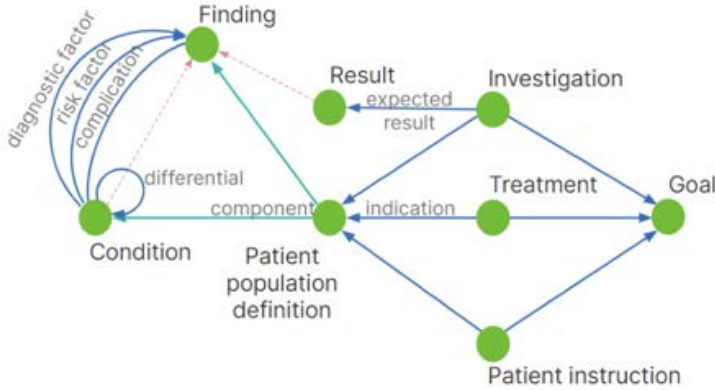
#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) BMJ's Clinical Intelligence website also has a “technical architecture” page that shows that the “knowledge graph repository” supports “KG [knowledge graph] extract / query” to enable “Direct knowledge graph query” and “LLM support.” It also provides “Clinical data APIs.”  (BMJ Website: Technical Architecture) BMJ indicated that the use cases of Clinical Intelligence include “directing care,” “support next best clinical action.” (BMJ Presentation at 21.) This shows that the APIs enable software to generate “a healthcare determination,” as recited in the claim.

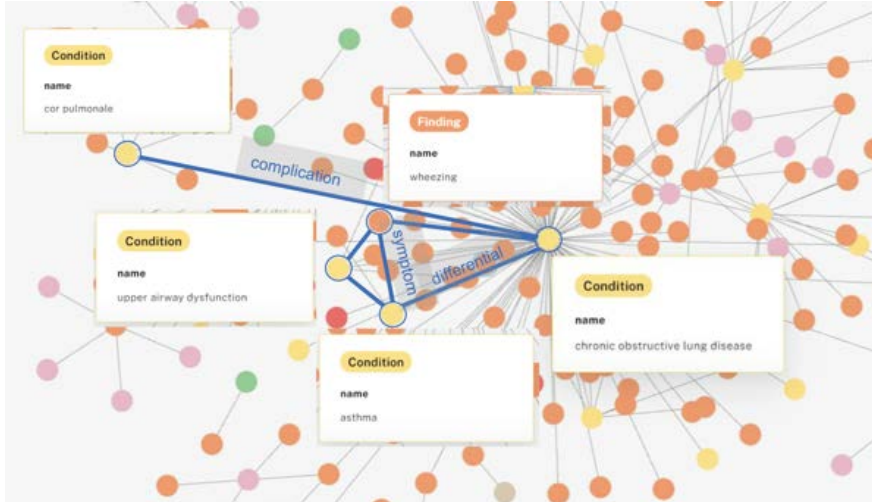
#	'882 Patent Claim	Accused Product
		Use cases - where and when we can help  Where knowledge graphs help Directing care where it is most needed - patient risk stratification - Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization - Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring - Support next best clinical action to improve outcomes - Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics - Pivoting to value based care - <i>optimise care for a population</i> - Support allocation of care resources to most in need of care At the point of care for individuals - Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth - Stratify populations into positives, greys and negatives for clinical review. AI deployment - Evidence derived data for training, testing and monitoring AI models - Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) How might BMJ Clinical Intelligence be used? BMJ Clinical Intelligence can be used in multiple contexts. It can be used in clinical decision support at the point of care via web services or as a SMART on FHIR application for individual patients. It can also be used as a knowledge resource in population health to address the care of cohorts of patients. At the point of care, the graph can be queried to look for deviations from a patient's expected course – for a care gap or untoward trend. And in turn, once it detects a deviation, it can suggest an early intervention to rectify the patient's care. (BMJ White Paper at 8.) The Healthcare IT Today Article describes that BMJ is “moving that knowledge base directly into the clinical workflow via an API.”

#	'882 Patent Claim	Accused Product
2	2. A computer system as recited in claim 1, wherein the instructions, when executed, further cause the one or more processors to: display on a computing device a portion of said graph database which includes said second entry of said first medical condition and each of said diagnostic factor entries and the links between said second entry and said diagnostic factor entries.	BMJ Clinical Intelligence displays on a computing device a portion of said graph database which includes said second entry of said first medical condition and each of said diagnostic factor entries and the links between said second entry and said diagnostic factor entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. The BMJ Presentation includes a screenshot of a screen graph browser through which BMJ displays a portion of its knowledge graph including links between diagnostic factors and conditions. The display is rendered on a computing device. In the example, the displayed portion includes the “Condition” node named “asthma,” consistent with a condition entry and a “Finding” node named “wheezing,” consistent with a diagnostic factor entry. The labeled “symptom” edge links the two, together. (BMJ Presentation at 31.)  (BMJ Presentation at 31.) In addition, a portion of the BMJ knowledge graph is shown including “Condition” nodes consistent with an entry of a medical condition and diagnostic factor entry nodes including “Finding,” “Test,” “Treatment,” “Goal,” “Component,” “PatientGroup,” and “PatientInstruction” nodes. (BMJ Presentation at 33.)

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 33.)

#	'882 Patent Claim	Accused Product
3	3. A computer system as recited in claim 1 wherein said each separate entry in said graph database is a node.	In BMJ Clinical Intelligence, said each separate entry in said graph database is a node. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. The illustration below shows the architecture of the BMJ knowledge graph which includes nodes that are labeled as “Condition,” “Finding,” “Result,” “Investigation,” “Treatment,” “Goal,” “Patient population definition,” and “Patient instruction” node types. (BMJ Presentation at 30.) The nodes in the knowledge graph therefore each represent separate entries for different conditions, findings, results, investigations, treatments, goals, patient populations, and patient instructions.

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) The BMJ website states that the knowledge graph “captures knowledge as a network of entities (or nodes),” demonstrating that the BMJ considers each node in the knowledge graph to be an entry. (BMJ Website: Technical Architecture.) Knowledge graph (KG): A knowledge graph captures knowledge as a network of entities (or nodes) and relationships between them. It is a way of organizing information in a structured and computable way that places greater focus on the interconnections between entities which is a central feature of healthcare knowledge. (BMJ Website: Technical Architecture) BMJ’s White Paper says that a knowledge graph is a “structured representation of information that captures the relationships between entities.” (BMJ White Paper at 6.) The BMJ knowledge graph is structured so that edges connect data entries, i.e., nodes as claimed. For example, the separate entries including the “wheezing” entry and the “asthma entry” are shown as “finding” and “condition” nodes in the example graph. (BMJ Presentation at 31).

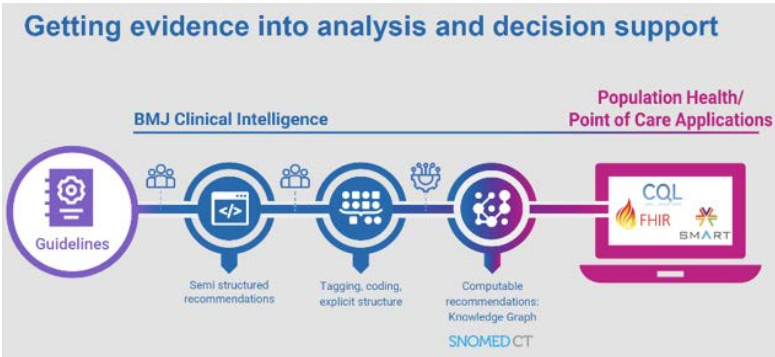
#	'882 Patent Claim	Accused Product
		A knowledge graph is a structured representation of information that captures the relationships between entities. It is a way to organize knowledge and data, and it highlights connections among various pieces of information. (BMJ White Paper at 6.)  (BMJ Presentation at 31.)

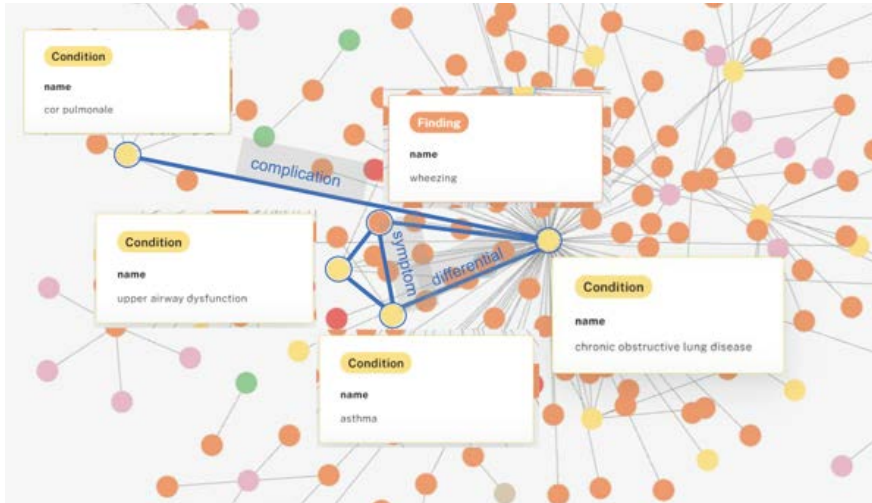
#	'882 Patent Claim	Accused Product
4	4. A computer system as recited in claim 1 wherein said each diagnostic factor entry includes a unique identifier which links to an entry in a medical ontology representing	In BMJ Clinical Intelligence, said each diagnostic factor entry includes a unique identifier which links to an entry in a medical ontology representing said each diagnostic factor. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. BMJ links entries associated with diagnostic factors in the knowledge graph to the SNOMED CT ontology. In particular, the BMJ presentation shows the pipeline in which “computable recommendations” in the knowledge graph are generated by tagging and coding the entries with “SNOMED CT” codes. (BMJ Presentation at 20.)

#	'882 Patent Claim	Accused Product
	said each diagnostic factor.	(BMJ Presentation at 20.) The presentation also shows that BMJ uses “Common Terminology Standards (SNOMED, RxNORM, LOINC, ICD (USCDI))” for its knowledge graph. (BMJ Presentation at 13.) The common terminology standards listed in the presentation function as medical ontologies. Therefore, labeling an entry with a standard term from one of the medical ontologies is consistent with providing an identifier for the entry that links the diagnostic factor to the medical ontology.

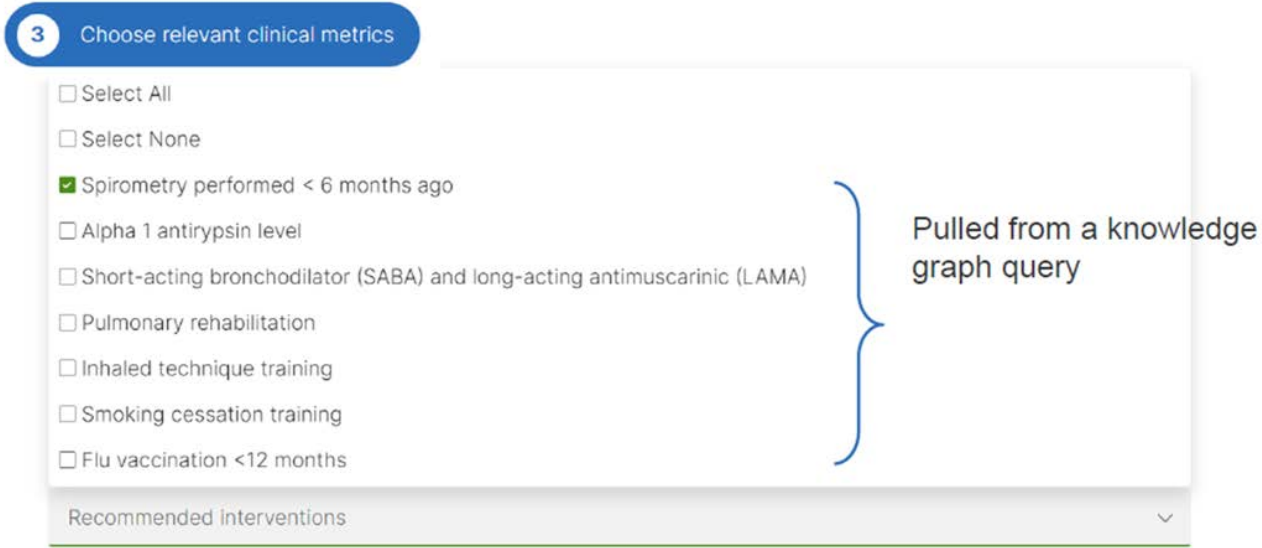
#	'882 Patent Claim	Accused Product
		Common Core Components: • Common Interoperability Standards (FHIR) • Common Data Model • Common Measure Logic (CQL) • Common Terminology Standards (SNOMED, RxNORM, LOINC, ICD (USCDI)) (BMJ Presentation at 13.) BMJ's website also defines RDF/OWL as an ontology web language that provides a "standard for formal representation from resources such as SNOWMED-CT" such that "[c]oncepts often form key nodes in a knowledge graph." The key nodes in the BMJ knowledge graph include diagnostic factor entries and the RDF/OWL standard formal representation acts as a unique identifier that links the knowledge graph entry to the SNOMED-CT medical ontology. (BMJ Website: Technical Architecture)

#	'882 Patent Claim	Accused Product
5	5. A computer system as recited in claim 1 wherein said each	On information and belief, in BMJ Clinical Intelligence, said each diagnostic factor entry includes at least one synonym of said diagnostic factor represented by said each diagnostic factor entry.

#	'882 Patent Claim	Accused Product		
	diagnostic factor entry includes at least one synonym of said diagnostic factor represented by said each diagnostic factor entry.	As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. BMJ uses SNOMED-CT in its tagging and coding pipeline for the knowledge graph. SNOMED CT concept entries inherently include synonym descriptions as part of their standard data model. For example, the Presentation describes tagging, coding, explicit structure leading to “Computable recommendations: Knowledge Graph” with “SNOMED CT.” (BMJ Presentation at 20.) To the extent BMJ incorporates SNOMED CT concept data into its diagnostic-factor entries, those entries may include at least one SNOMED CT synonym. Getting evidence into analysis and decision support  (BMJ Presentation at 20.) Additionally, BMJ’s own materials use both “wheeze” (in source publications) and “wheezing” (in the knowledge graph Finding node), indicating that BMJ’s editorial pipeline handles terminological variants of the same clinical concept. For example, in Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition. <table><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr></table> In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and showed that “wheezing” is a “symptom” of “asthma.”	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma
Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma			

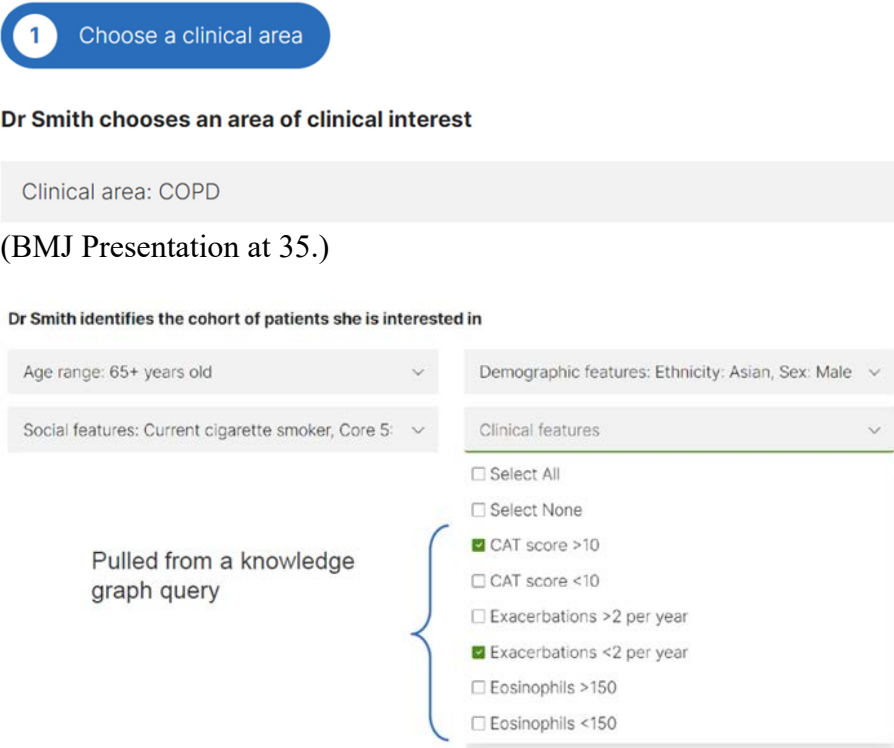
#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)

#	'882 Patent Claim	Accused Product
6	6. A computer system as recited in claim 1 wherein said each diagnostic factor entry includes a temporality attribute, a negation attribute or an experienter attribute.	In BMJ Clinical Intelligence, said each diagnostic factor entry includes a temporality attribute, a negation attribute or an experienter attribute. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ's metric list, which it states is "[p]ulled from a knowledge graph query," includes "Spirometry performed < 6 months ago" and "Flu vaccination <12 months." (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 39.) BMJ also stores negation attributes for diagnostic factor entries. For example, the presentation shows an example in which BMJ reports whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.) “No” values stored in the diagnostic factor entries demonstrate negation attributes.

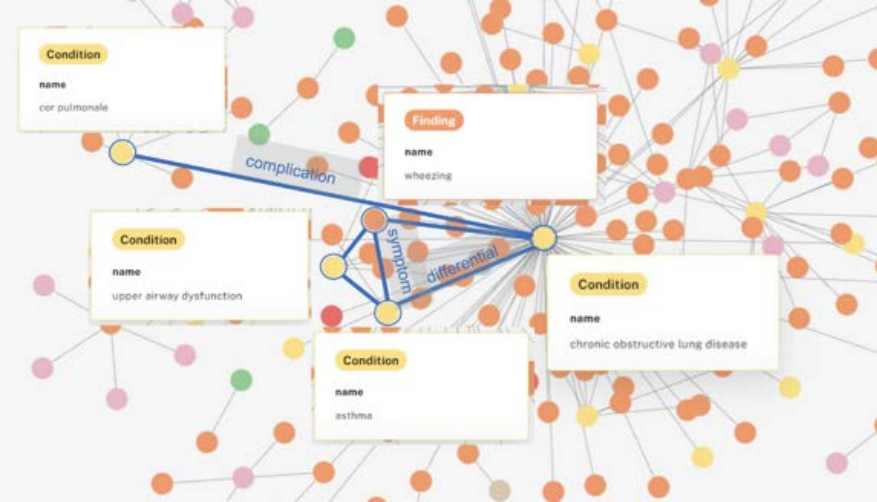
#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <thead> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> </thead> <tbody> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </tbody> </table> (BMJ Presentation at 43.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
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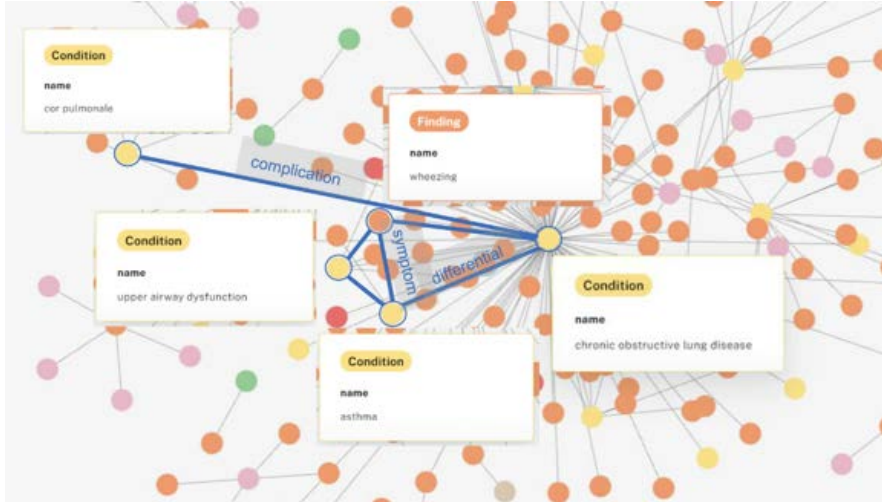
#	'882 Patent Claim	Accused Product
7a	7. A computer system as recited in claim 1, wherein the instructions, when executed, further cause the one or more processors to: receive input from a person via a computing device indicating a demographics corresponding to one of	BMJ Clinical Intelligence receives input from a person via a computing device indicating a demographics corresponding to one of said diagnostic factors, said demographics indicating a type of person to which said one of said diagnostic factors occurs in the context of said one or more medical conditions. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. BMJ's presentation walks through an example of a clinician ("Dr. Smith") entering demographic input about a patient at a computing device. In the BMJ presentation, the options the clinician can select are diagnostic factors that occur in the context of the medical condition of "COPD."

#	'882 Patent Claim	Accused Product
	said diagnostic factors, said demographics indicating a type of person to which said one of said diagnostic factors occurs in the context of said one or more medical conditions; and	After choosing “Clinical area: COPD,” Dr. Smith “identifies the cohort of patients she is interested in” using dropdown menus and checkboxes in the user interface to select “Age range: 65+ years old,” “Demographic features: Ethnicity: Asian, Sex: Male,” and “Social features: Current cigarette smoker.” (BMJ Presentation at 35-36.) The dropdowns and checkboxes are examples of ways for the Clinical Intelligence to receive input from the clinician about the patient demographics. Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention.  The screenshot shows a user interface for selecting a clinical area and patient cohort. At the top, a blue button labeled '1 Choose a clinical area' is shown. Below it, a section titled 'Dr Smith chooses an area of clinical interest' contains a dropdown menu with 'Clinical area: COPD' selected. Below this, a section titled 'Dr Smith identifies the cohort of patients she is interested in' contains three dropdown menus: 'Age range: 65+ years old', 'Demographic features: Ethnicity: Asian, Sex: Male', and 'Social features: Current cigarette smoker, Core 5'. Below these, a section titled 'Clinical features' is shown with a list of checkboxes: 'Select All', 'Select None', 'CAT score >10' (checked), 'CAT score <10', 'Exacerbations >2 per year', 'Exacerbations <2 per year' (checked), 'Eosinophils >150', and 'Eosinophils <150'. A blue bracket on the left side of the 'Clinical features' list is labeled 'Pulled from a knowledge graph query'. (BMJ Presentation at 35.) (BMJ Presentation at 36.)
7b	store said demographics in a demographics entry linked between one of	BMJ Clinical Intelligence stores said demographics in a demographics entry linked between one of said medical condition entries and one of said diagnostic factors entries representing said one of said diagnostic factors.

#	'882 Patent Claim	Accused Product
	said medical condition entries and one of said diagnostic factors entries representing said one of said diagnostic factors.	The “Patient Population Definition” node type shown in BMJ’s Knowledge Graph Architecture is linked between a “Condition” node and other diagnostic factor nodes such as the “Investigation,” “Treatment,” and “Patient Instruction” nodes. (BMJ Presentation at 30.) This demonstrates that the BMJ knowledge graph stores the demographics in the form of a “Patient population definition” entry and that the demographics entry is linked to the medical condition and diagnostic factors entries as claimed. Knowledge Graph Architecture (BMJ Presentation at 30.)

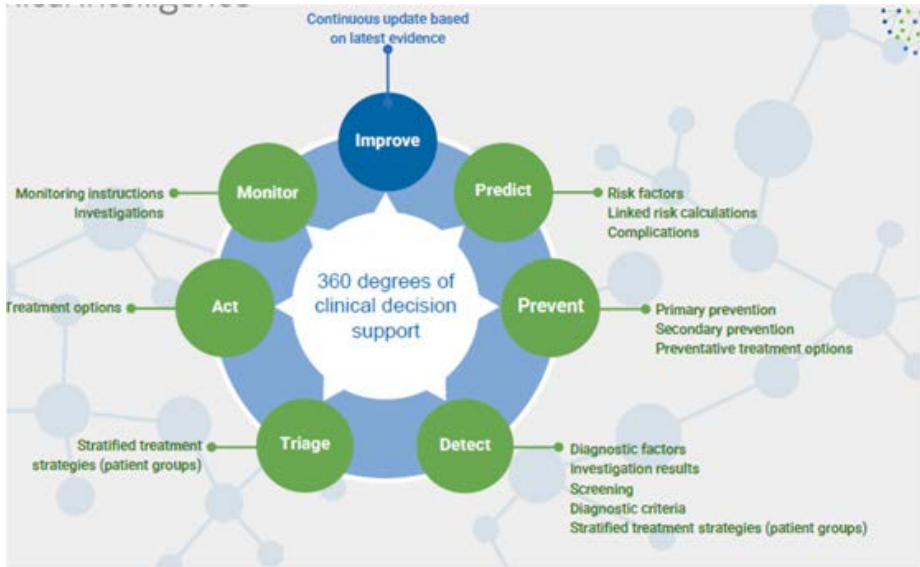
#	'882 Patent Claim	Accused Product
8a	8. A computer system as recited in claim 1, wherein at least one of said diagnostic factors for a second medical condition being the same as one of said diagnostic	In BMJ Clinical Intelligence, at least one of said diagnostic factors for a second medical condition being the same as one of said diagnostic factors for said first medical condition. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. BMJ’s example knowledge graph browser in the BMJ presentation shows that at least one diagnostic factor shown as a “Finding” node named “wheezing” is associated with both a first medical condition node of “Asthma” and a second medical condition node of “chronic obstructive lung disease.” (BMJ

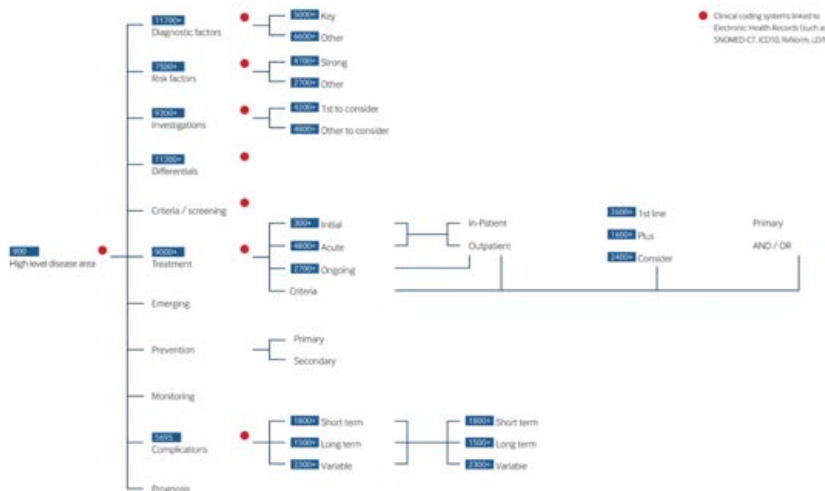
#	'882 Patent Claim	Accused Product
	factors for said first medical condition,	Presentation at 31.) This demonstrates that at least one diagnostic factor (wheezing) for a second medical condition (chronic obstructive lung disease) is the same as one of the diagnostic factors for a first medical condition (asthma).  (BMJ Presentation at 31.) BMJ states in its White Paper that its knowledge graph allows BMJ “to look at a disease and find all of its neighbors and comorbidities to which the disease might be connected” (BMJ White Paper at 8). This indicates that the BMJ diagnostic factors are shared across multiple medical conditions, for example how BMJ shows that wheezing is a diagnostic factor for asthma and for chronic obstructive lung disease. to each other to give a complete picture of a domain of practice. Knowledge graphs allow us to do decision support in novel ways. They allow us not only to do individual condition-specific decision support for a particular disease, they also allow us to look at a disease and find all of its neighbors and comorbidities to which the disease might be connected, and to find out how all of those relate to the patient’s overall state. (BMJ White Paper at 8.)
8b	wherein said second medical condition being linked to said at least one diagnostic factor and said	In BMJ Clinical Intelligence, said second medical condition being linked to said at least one diagnostic factor and said first medical condition being linked to said at least one diagnostic factor.

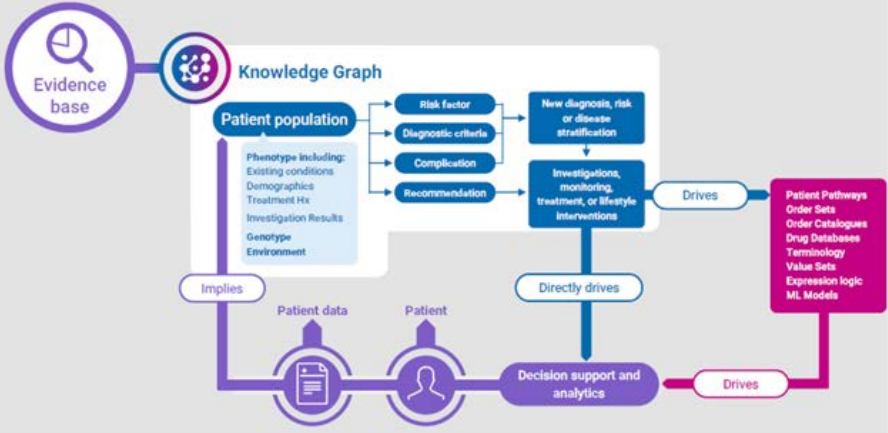
#	'882 Patent Claim	Accused Product
	first medical condition being linked to said at least one diagnostic factor.	BMJ's example knowledge graph browser in the BMJ presentation shows that at least one diagnostic factor shown as a "Finding" node named "wheezing" is linked via graph edges to both a first medical condition node of "Asthma" and a second medical condition node of "chronic obstructive lung disease." (BMJ Presentation at 31.) This shows that BMJ links the second medical condition and the first medical condition to the same diagnostic factor, as claimed.  (BMJ Presentation at 31.)

#	'882 Patent Claim	Accused Product
9	9. A computer system as recited in claim 8 wherein traversing said graph database from said at least one diagnostic factor to said second medical condition produces a second rank for said at least one diagnostic factor in the	On information and belief, in BMJ Clinical Intelligence, traversing said graph database from said at least one diagnostic factor to said second medical condition produces a second rank for said at least one diagnostic factor in the context of said second medical condition which is different from a first rank produced by traversing from said at least one diagnostic factor to said first medical condition. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 8. For example, traversing BMJ's graph database from one diagnostic factor to a second medical condition produces a rank different from traversing from that same diagnostic factor to a first medical condition. BMJ's case study with Sayvant illustrates this by showing that the same patient finding

#	'882 Patent Claim	Accused Product
	context of said second medical condition which is different from a first rank produced by traversing from said at least one diagnostic factor to said first medical condition.	profile (chest pain, non-specific ECG, smoking history) produces one likelihood/rank result in the context of Acute Coronary Syndrome (a “moderate risk” HEART score) and a different rank/priority in the context of the alternative flagged condition, Pulmonary Embolism, for which the system separately “prompts the physician to consider a D-dimer or CTA Chest.” BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant’s clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph’s comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient’s risk using established clinical scores. Based on the patient’s age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the “moderate risk” category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical “can’t miss” alternative. Given the non-specific ECG and the patient’s smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn’t focus solely on the heart. Outcome: Sayvant’s clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

#	'882 Patent Claim	Accused Product
11a	11. A computer system as recited in claim 1 wherein the instructions, when executed, further cause the one or more processors to: retrieve at least one laboratory test that is associated with one or more of said plurality of medical conditions; and	BMJ Clinical Intelligence retrieves at least one laboratory test that is associated with one or more of said plurality of medical conditions. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. For example, the BMJ presentation shows how “investigations” are a part of detecting conditions and monitoring treatment. (BMJ Presentation at 18). The knowledge graph architecture diagram shown in the BMJ website indicates that the investigations are linked to “high level disease areas” which corresponds to associating the investigations with medical conditions. The investigations are consistent with laboratory tests as recited in the claim.  (BMJ Presentation at 18.)

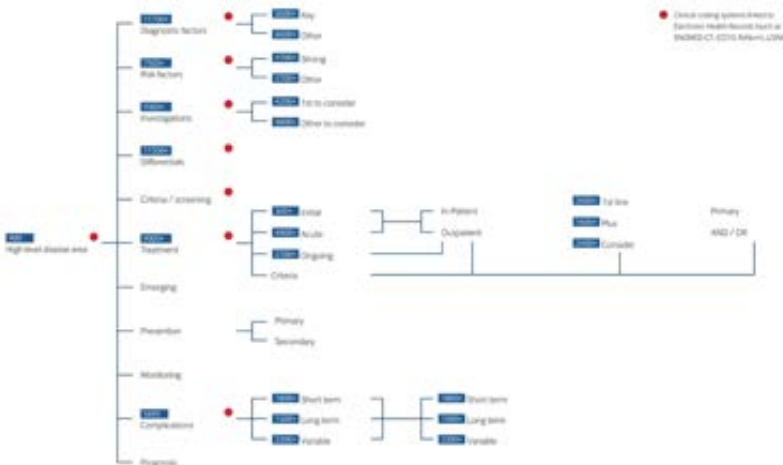
#	'882 Patent Claim	Accused Product
		 (BMJ Website: Knowledge Graph Architecture.) The “investigations” described by BMJ are consistent with laboratory tests. For example, the Presentation describes certain use cases of the knowledge graph being to “reduce unwarranted variation in investigation” including “reduc[ing] low value tests and procedures.” (BMJ Presentation at 21.) This phrasing indicates that laboratory “tests” are a kind of investigation contemplated by BMJ. This is also supported by the “investigation results” included as part of the “sustainable patient centred cycle” in which BMJ shows “patient data” feeding back into the information in the knowledge graph about the patient population. Reduce unwarranted variation in investigation, treatment, and monitoring • Support next best clinical action to improve outcomes • Reduce low value tests and procedures (BMJ Presentation at 21.)

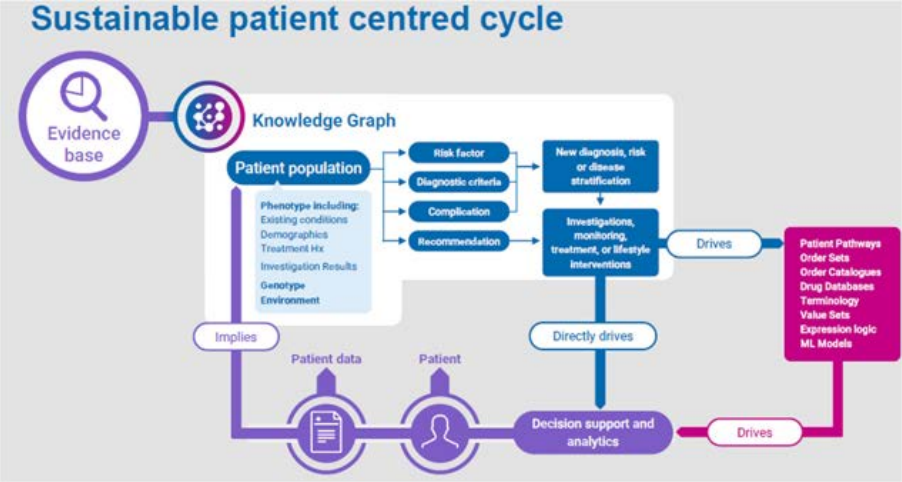
#	'882 Patent Claim	Accused Product
		Sustainable patient centred cycle  (BMJ Presentation at 45.)
11b	store said laboratory test as a separate entry in said graph database, one of said medical conditions being linked to said laboratory test, wherein an entry of said laboratory test in said graph database does not include information specific to said medical condition linked to said laboratory test.	BMJ Clinical Intelligence stores said laboratory test as a separate entry in said graph database, one of said medical conditions being linked to said laboratory test, and an entry of said laboratory test in said graph database does not include information specific to said medical condition linked to said laboratory test. The knowledge graph architecture diagram shows that BMJ stores laboratory tests in “Investigation” nodes. This means that the laboratory tests are stored as entries in the graph database that supports the knowledge graph. The investigation node is linked to the “Condition” node via the “Patient Population Definition” node. Because the patient population definition node is located between the investigation and condition nodes, the investigation node representing the entry of the laboratory test does not include information specific to the medical condition, but could link to many conditions. (BMJ Presentation at 30.)

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 30.)

#	'882 Patent Claim	Accused Product
12	12. A computer system as recited in claim 1 wherein said graph database includes more than twenty thousand entries.	The graph database of BMJ Clinical Intelligence includes more than twenty thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. BMJ's "Knowledge Graph Architecture" slide reports node counts by category: 905 disease, 7,555 risk factor, 11,705 diagnostic factor, 9,339 investigation, 11,330 differential, 9,062 treatment action, and 5,695 complication. (BMJ Presentation at 32.) The seven listed categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand entries. Furthermore, another version of the figure shown in the BMJ website makes clear that the listed entry numbers are floors, not totals, by including plus symbols after the node counts in the various categories. (BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32.) (BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
13	13. A computer system as recited in claim 1 wherein said graph database includes more than one hundred thousand entries.	On information and belief, the graph database of BMJ Clinical Intelligence includes more than one hundred thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. On its Clinical Intelligence website, BMJ shows an example of its knowledge graph architecture. BMJ indicates that the “[n]umbers indicate the current approximate number of relationships in each area” and it will “continue to expand coverage.” Aggregating the approximate numbers and not including BMJ’s continued expended coverage, the total number of relationships described in BMJ’s knowledge graph has exceeded 100,000. Knowledge graph architecture A clinical perspective on the rich scope of relationships covered in the graph both in terms of breadth and depth. BMJ Clinical Intelligence knowledge graph covers the patient management pathway from prevention through diagnosis to potential complications. Numbers indicate the current approximate number of relationships in each area. We continue to expand coverage.  The diagram illustrates a hierarchical knowledge graph architecture. It starts with a central node 'High level clinical area' which branches into several categories: Diagnostic factors, Risk factors, Investigations, Differential, Criteria / screening, Treatment, Imaging, Prevention, Monitoring, and Complications. Each category further branches into more specific sub-categories, many of which are accompanied by red dots and numbers indicating the approximate number of relationships. For example, 'Diagnostic factors' branches into 'Any' (10,000) and 'Other' (10,000). 'Risk factors' branches into 'Smoking' (10,000) and 'Other' (10,000). 'Investigations' branches into 'To be considered' (10,000) and 'Other to consider' (10,000). 'Differential' branches into 'To be considered' (10,000) and 'Other to consider' (10,000). 'Criteria / screening' branches into 'Criteria' (10,000) and 'Screening' (10,000). 'Treatment' branches into 'Initial' (10,000), 'Acute' (10,000), 'Discharge' (10,000), and 'Criteria' (10,000). 'Imaging' branches into 'Inpatient' (10,000) and 'Outpatient' (10,000). 'Prevention' branches into 'Primary' (10,000) and 'Secondary' (10,000). 'Monitoring' branches into 'Short term' (10,000) and 'Long term' (10,000). 'Complications' branches into 'Short term' (10,000), 'Long term' (10,000), and 'Variable' (10,000). The diagram also includes a legend for 'Clinical coding system (ICD10)' and 'Diagnostic codes (ICD10)'. (BMJ Website: Knowledge Graph Architecture.)

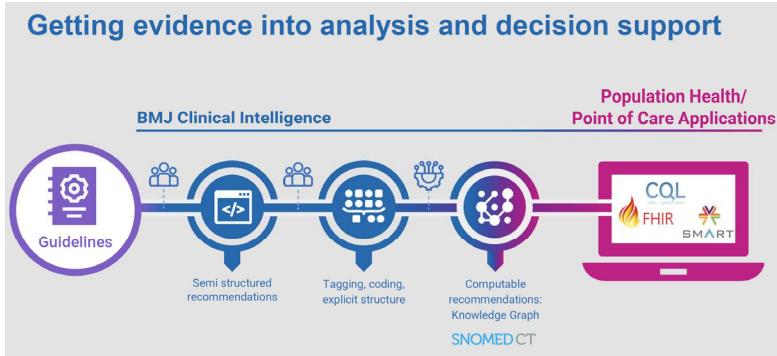
#	'882 Patent Claim	Accused Product
14	14. A computer system as recited in claim 1 wherein said healthcare determination is a recommendation, an evaluation, a result, or a conclusion.	In BMJ Clinical Intelligence, said healthcare determination is a recommendation, an evaluation, a result, or a conclusion. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 1. For example, BMJ's patient centred cycle slide shows "Recommendation" as an output of the knowledge graph, which indicates that one of the possible healthcare determinations in the BMJ Clinical Intelligence system is a recommendation. (BMJ Presentation at 45.)  The diagram, titled "Sustainable patient centred cycle", illustrates a workflow. It starts with an "Evidence base" (magnifying glass icon) and a "Knowledge Graph" (network icon). The "Knowledge Graph" leads to a "Patient population" box, which lists "Phenotype including: Existing conditions, Demographics, Treatment Hx, Investigation Results, Genotype, Environment". From the "Patient population", arrows point to "Risk factor", "Diagnostic criteria", "Complication", and "Recommendation". These lead to "New diagnosis, risk, or disease stratification", which then leads to "Investigations, monitoring, treatment, or life-style interventions". This box "Drives" "Patient Pathways, Order Sets, Order Catalogues, Drug Catalogues, Terminology, Value Sets, Expression logic, ML Models". Below the "Patient population" box, "Patient data" (document icon) and "Patient" (person icon) are shown. "Patient data" "Implies" the "Patient population". The "Patient" "Directly drives" "Decision support and analytics" (cylinder icon). "Decision support and analytics" "Drives" the "Patient Pathways..." box. The "Patient Pathways..." box also "Drives" "Decision support and analytics". (BMJ Presentation at 45.) Examples in the BMJ presentation also show that the healthcare determinations output by the BMJ Clinical Intelligence system can include results or conclusions. For example, the presentation shows an example in which BMJ reports results/conclusions about whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.)

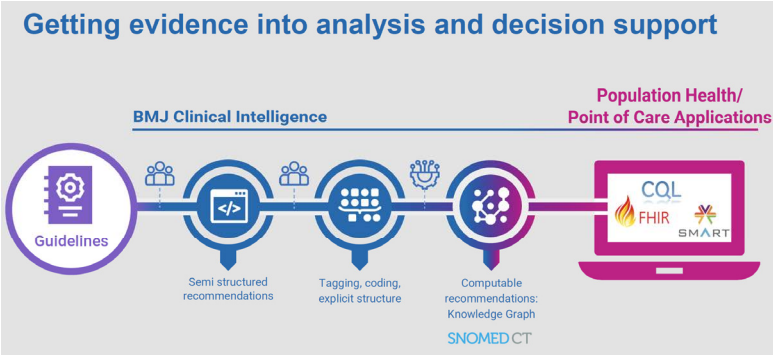
#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) The BMJ knowledge graph can also “identify deviations in patient care, suggest interventions, and facilitate early diagnosis.” (BMJ White Paper at 3.) Additionally BMJ clinical intelligence can “recommend evidence-based interventions for both cohorts and individuals.” <i>Population Health</i>, available at https://clinicalintelligence.bmj.com/population-health/ (last visited September 2, 2026) (“BMJ Website: Population Health”). Recommending interventions is consistent with outputting a recommendation as claimed. BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis. In population health, the graph enables comprehensive monitoring, analysis, and early intervention, ensuring efficient resource utilization. (BMJ White Paper at 3.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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Streptococcus vaccination		✗ NO																														

#	'882 Patent Claim	Accused Product
		It can be applied to a whole population or used to stratify cohorts with a given condition such as diabetes. BMJ clinical intelligence can further stratify patients – identifying those who are not proceeding as expected in their care journey. Where there are care gaps or unexpected trends, BMJ clinical intelligence can recommend evidence-based interventions for both cohorts and individuals, as it covers entire pathways of care. This can help get cohorts of patients back on the right track. (BMJ Website: Population Health.)

#	'882 Patent Claim	Accused Product
15pre	15. A computer system for determining a state of a patient, said computer system comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, for determining a state of a patient. For example, BMJ's case study with Sayvant demonstrates that BMJ Clinical Intelligence is used to determine a patient's clinical state in real time, including generating "differential diagnosis generation" and "risk stratification" based on a specific patient's presenting findings, comorbidities, and medications (e.g., the Jean, Arthur, and Eric case studies).

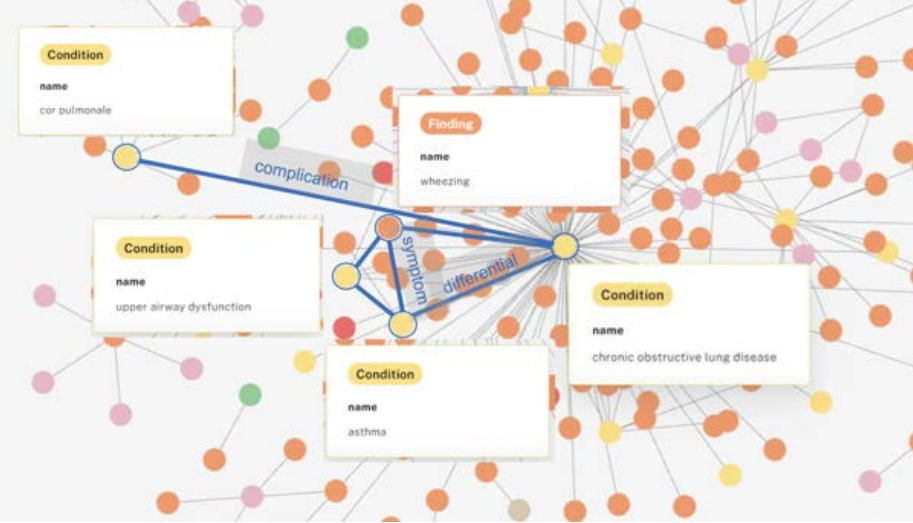
#	'882 Patent Claim	Accused Product
		The BMJ clinical intelligence knowledge graph insight generation The BMJ clinical intelligence knowledge graph, containing millions of interconnected data points on diseases, symptoms, treatments, drug interactions, and genetic markers, processed the input. The resource provided the following initial insights: • Differential diagnosis generation: Based on the high-risk combination of atrial fibrillation and the specific clinical presentation of "pain out of proportion to physical exam" (severe subjective pain with a soft abdomen), the system prioritized a critical, time-sensitive diagnosis. While common causes like Gastritis or Diverticulitis were considered, the system flagged Acute Mesenteric Ischemia as a "must-not-miss" differential that required immediate exclusion. • Drug-disease interaction analysis: Sayvant cross-referenced the patient's current medications (Metoprolol) against the clinical presentation. It flagged that the beta-blocker (Metoprolol) could potentially mask the expected tachycardic response to severe pain or sepsis, falsely reassuring the clinician about the patient's hemodynamic stability. • Recommended diagnostic path: The system prioritized a targeted vascular investigation rather than a standard abdominal workup. It recommended further blood tests and a specific imaging protocol to rule out vascular occlusion: ◦ Serum lactate (to assess for tissue ischemia) ◦ Imaging: CT Angiography (CTA) of the Abdomen/Pelvis (specifically requesting arterial phase to evaluate the superior mesenteric artery). Outcome and treatment Following the Sayvant and BMJ clinical intelligence insights, the treating physician ordered the specific CTA protocol rather than a standard CT abdomen. Key diagnostic findings: • Serum lactate: Elevated (3.2 mmol/L), indicating tissue hypoperfusion. • CT angiography: Revealed an acute embolic occlusion of the proximal Superior Mesenteric Artery (SMA), a finding strongly correlating with the system's flagged association between Atrial Fibrillation and sudden abdominal pain. (BMJ Case Study at 6.) BMJ's White Paper also describes "projecting the data against the knowledge graph and getting a snapshot of the patient's current state." (BMJ White Paper at 9.) BMJ adds that knowledge graphs allow it "to project the entire patient data set against the graph and to get a better picture of the

#	'882 Patent Claim	Accused Product
		patient.” (BMJ White Paper at 9.) These descriptions demonstrate that BMJ is using a computer system to determine a state of a patient, as claimed. Knowledge graphs also give us the ability to project the entire patient data set against the graph and to get a better picture of the patient – a more comprehensive picture than what might emerge from using forward and backward chaining through rule bases. When we see the whole patient state reflected against the graph, it can tell us for example that we expected to know a certain fact about the patient but we do not see it or we do not see that a relevant procedure or investigation has been considered – as it is not seen in the data. This is a patient-centered, data-driven approach – projecting the data against the knowledge graph and getting a snapshot of the patient’s current state, and telling the end user who may or may not be familiar with that patient what are reasonable expectations for their care delivery or care journey. (BMJ White Paper at 9.)
15a	one or more processors; and	BMJ Clinical Intelligence comprises one or more processors. Based on the figure below from BMJ’s Presentation, CI is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate CI.  (BMJ Presentation at 20.)
15b	memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause	BMJ Clinical Intelligence comprises memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to perform the claimed steps that follow. Based on the figure below from BMJ’s Presentation, CI is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate CI.

#	'882 Patent Claim	Accused Product
	the one or more processors to:	 (BMJ Presentation at 20.)
15c	extract from a plurality of medical evidence sources	BMJ Clinical Intelligence extracts from a plurality of medical evidence sources. BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been providing digital clinical decision support for over fifteen years. It has now built an expert knowledge engineering team with deep experience in the translation process from guidelines to computable evidence at scale across whole domains – from clinical medicine to population health. The result is computable evidence that can be applied at the point of care and in population health management for each and every clinical decision made. (BMJ White Paper at 7.) The paragraph above in the Whitepaper indicates that BMJ relies on its “clinical journals” to provide computable evidence. The papers in the “clinical journals” include “text from a plurality of medical evidence sources” that are recited in the claim. The text received by BMJ also pertains to different medical conditions. Three examples of medical publications by BMJ Open that pertain to different medical conditions are discussed.

#	'882 Patent Claim	Accused Product
		“Publication 1” is entitled, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” which discussed various respiratory and non respiratory conditions. (Publication 1 at 3.) “Publication 2” is entitled, “Association between rhinovirus wheezing illness and the development of childhood asthma: a meta-analysis,” which discussed rhinovirus wheezing illness and asthma. (Publication 2 at 1.) “Publication 3” is entitled, “Working in a cold environment, feeling cold at work and chronic pain: a cross-sectional analysis of the Tromsø Study,” which discussed cold and chronic pain. (Publication 3 at 1.) “Wheezing” will be used as a primary example of a medical condition in this claim chart, but many other medical conditions will also meet this and other limitations in this claim chart. The “text from a plurality of medical evidence sources” recited in the claim can include text from medical journals (which themselves are different sources), clinical data, and other data sources. For example, in addition to the medical journals, in its Presentation, BMJ also explained that it “gather[s] clinical data once” and uses CI to allow text in the clinical data to be “standardize[d], streamline[d], and simplif[ied].” • Gather clinical data once as a by-product of the clinical encounter (reduce physician burden), and all related community/public health data, social determinants of health • Reuse all data for all purposes: Treatment, payment and operations (TPO), quality reporting, clinical decision support, operations improvement, public health, research/discovery (digital twins) • Patient at the center – P4 Medicine (preventative, predictive, personalized, and participatory), collaborative and coordinated care across the continuum of care • Engage the patient as a care collaborator – data acquisition, support self-care, shared-decision making • Employ cognitive aides to augment clinical reasoning - by patient and by provider • Create computable knowledge artifacts for all of the above – make them readily shareable and usable Do all of this at scale – standardize, streamline, and simplify (BMJ Presentation at 6.)

#	'882 Patent Claim	Accused Product
15d	a plurality of diagnostic factors that are indicative of one or more of a plurality of medical conditions,	The content extracted by BMJ from a plurality of medical evidence sources includes a plurality of diagnostic factors that are indicative of one or more of a plurality of medical conditions. BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been providing digital clinical decision support for over fifteen years. It has now built an expert knowledge engineering team with deep experience in the translation process from guidelines to computable evidence at scale across whole domains – from clinical medicine to population health. The result is computable evidence that can be applied at the point of care and in population health management for each and every clinical decision made. (BMJ White Paper at 7.) What is BMJ Clinical Intelligence?  • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content (BMJ Presentation at 17.) The paragraph in the White Paper and the Presentation indicate BMJ uses “rigorous editorial methodology” to turn the electronic text of papers in clinical journals into “computable evidence in the form of a knowledge graph.” Below is a specific example of how BMJ extracts an association between a diagnostic factor and a medical condition from an electronic text to put such association into the knowledge graph of Clinical Intelligence. In Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition.

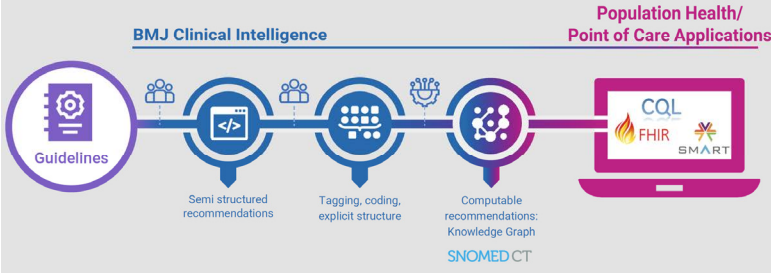
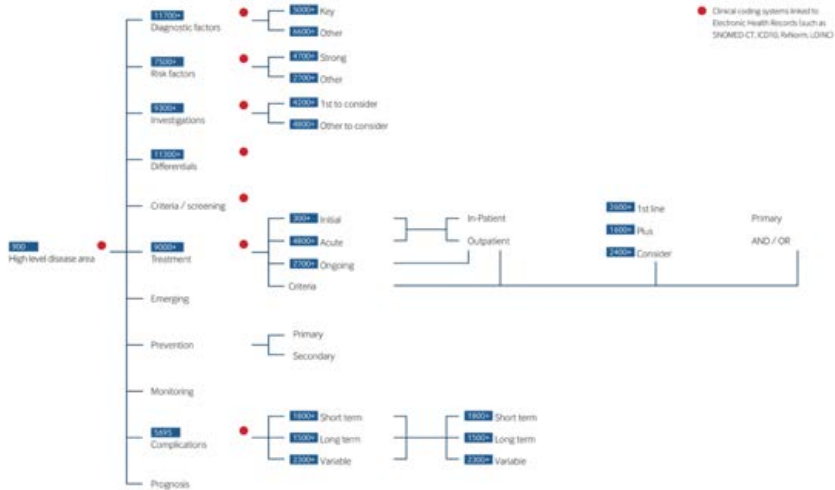
#	'882 Patent Claim	Accused Product
		Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and showed that “wheezing” is a “symptom” of “asthma.”  (BMJ Presentation at 31.)

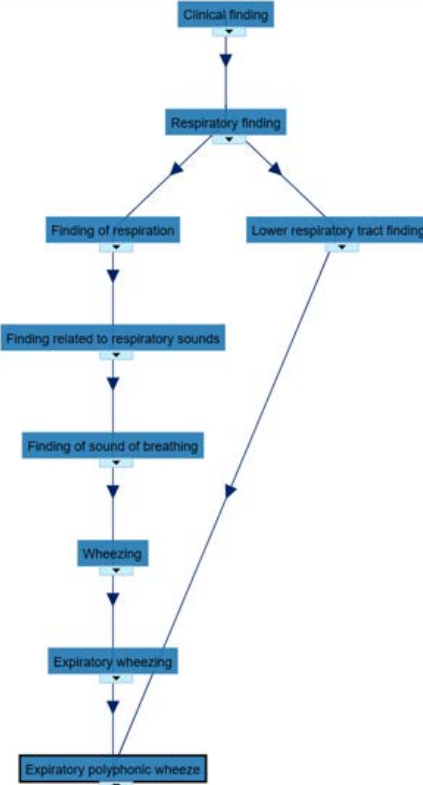
#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” that are associated with “disease,” which is an example of a diagnostic factor being indicative of a medical condition.
15e	wherein at least a subset of said medical evidence sources includes a published journal	At least a subset of said medical evidence sources from which BMJ Clinical Intelligence receives electronic text includes a published journal.  BMJ Journals https://journals.bmj.com BMJ Journals: Home Our peer reviewed journals include high impact, selective titles that publish innovative research, comprehensive reviews, educational content and case studies. (Website: BMJ Journals.) From the title of BMJ Journals website, BMJ operates a number of journals. The three medical publication examples are published by BMJ Open. It is an “online, open access journal,” which is one of the examples of a published journal.

#	'882 Patent Claim	Accused Product
		  BMJ Open is an online, open access journal, dedicated to publishing medical research from all disciplines and therapeutic areas. (Website: BMJ Open)
15f	and wherein said medical evidence sources provide different taxonomies that arrange one or more of said diagnostic factors and/or one or more of said medical conditions in different hierarchies,	The said medical evidence sources from which BMJ Clinical Intelligence receives electronic text provide different taxonomies that arrange one or more of said diagnostic factors and/or one or more of said medical conditions in different hierarchies. Below are two examples of medical evidence sources that are used by BMJ which have different taxonomies that arrange “wheezing” in different hierarchies. While “wheezing” is used as an example, BMJ’s Clinical Intelligence uses many different diagnostic factors and medical conditions that will equally meet this claim element. The first example of a medical evidence source is Publication 1. The first medical evidence source puts “wheezing-ill” in a first taxonomy that is based on the hierarchy of “classification of consultation.” See Figure 1 at the bottom of the screen capture.

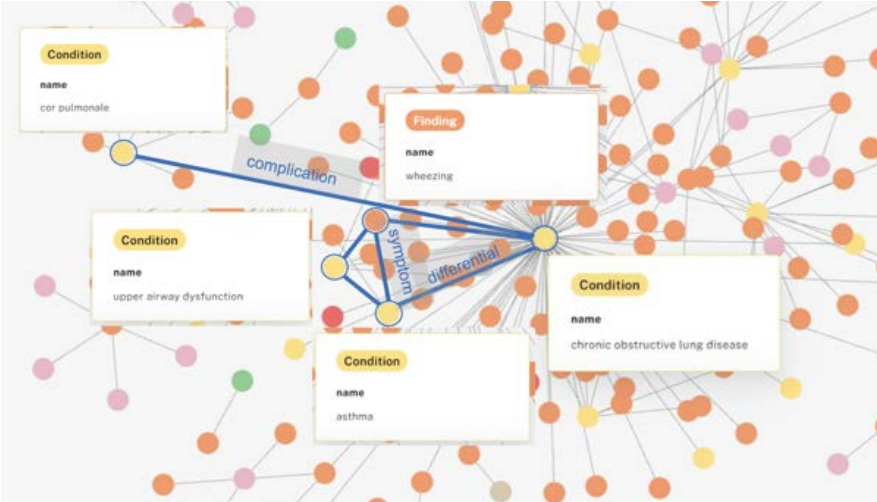
#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (Figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 5 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] B --> D[URT] B --> E[LRT] C --> F[Wheeze-ill] C --> G[Throat infections] C --> H[Otitis media] C --> I[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URT, upper respiratory tract infection; LRT, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J. et al. <i>BMJ Open</i> 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 (Publication 1 at 3.) The first medical evidence source also puts “wheeze” and wheeze-related conditions into another taxonomy, which is a Table 1 that is based on the hierarchy of respiratory classification categories.

#	'882 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr><tr><td>Throat infections</td><td> ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear </td></tr><tr><td>Other respiratory</td><td> ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.) The second example of a medical evidence source is SNOMED CT, which is used by BMJ Clinical Intelligence as shown in the graph below.	Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma	Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear	Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
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Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear															
Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient															

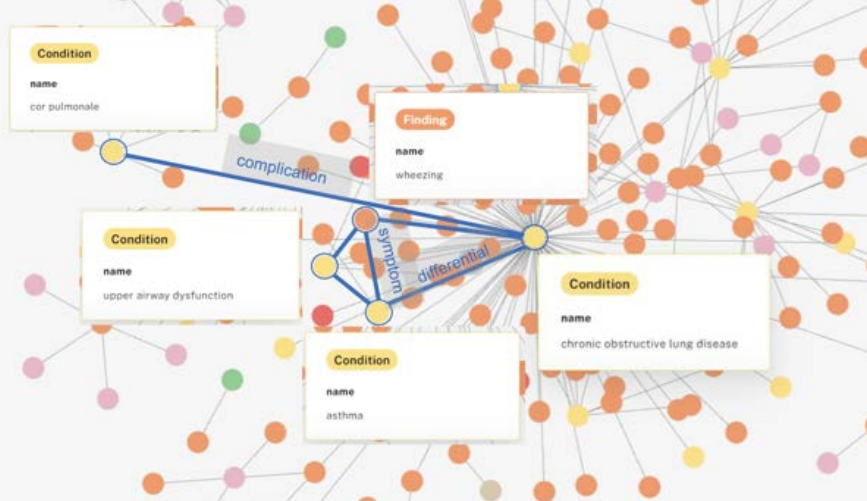
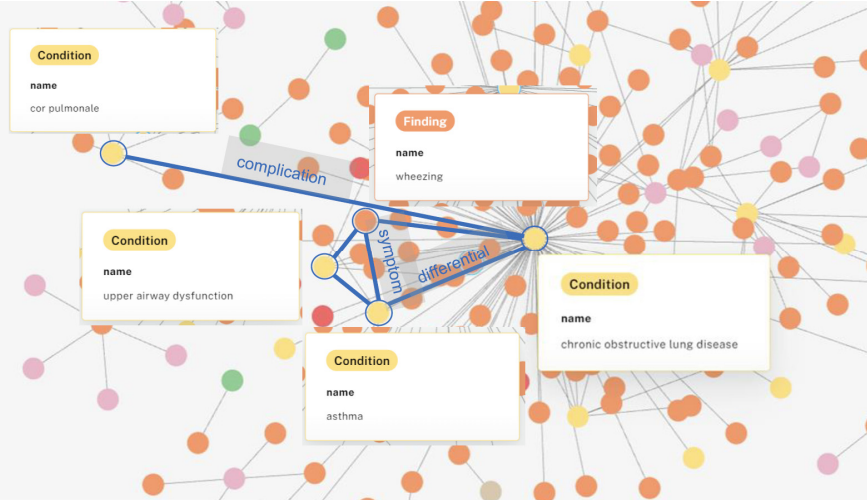
#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) SNOMED-CT is also explicitly mentioned in BMJ's Clinical Intelligence website regarding the knowledge graph architecture as being linked to clinical coding systems.  (BMJ Website: Knowledge Graph Architecture.) The second medical evidence source, SNOMED CT, puts “wheezing” in another taxonomy that is based on the hierarchy of respiratory sounds. The link below reveals a screen capture of the “Visualization” tab that illustrates this hierarchy.

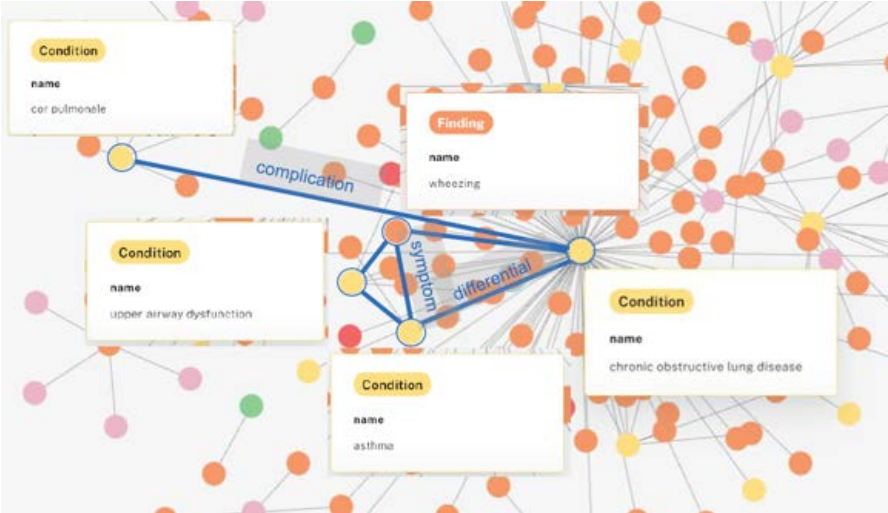
#	'882 Patent Claim	Accused Product
		 <pre> graph TD A[Clinical finding] --> B[Respiratory finding] B --> C[Finding of respiration] B --> D[Lower respiratory tract finding] C --> E[Finding related to respiratory sounds] E --> F[Finding of sound of breathing] F --> G[Wheezing] G --> H[Expiratory wheezing] H --> I[Expiratory polyphonic wheeze] D --> I </pre> (Website: Bioportal). In the two medical evidence sources above, wheezing is arranged in different hierarchies based on different concepts and is associated with different other diagnostic factors and/or medical conditions such as “throat infection” in the first medical evidence source (Publication 1), and “expiratory polyphonic wheeze” in the second medical evidence source (SNOMED).
15g	and wherein a first diagnostic factor is discussed in part of said medical evidence sources as being indicative of a first medical condition;	In BMJ Clinical Intelligence, a first diagnostic factor is discussed in part of said medical evidence sources as being indicative of a first medical condition. In Publication 1, the authors discussed that “wheeze” is indicative of “Asthma,” which is a medical condition.

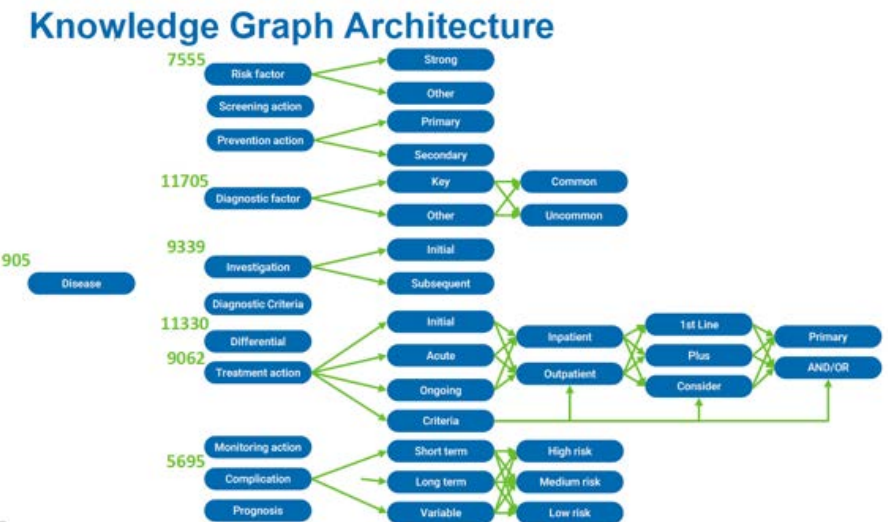
#	'882 Patent Claim	Accused Product
		Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma (Publication 1 at 4.) While in this claim chart “wheeze” is used as an example of “first diagnostic factor” recited in the claim and “asthma” is used as “first medical condition” recited in the claim, BMJ’s Clinical Intelligence uses many more examples of diagnostic factors and medical conditions that will meet the claim element.
15h	create a graph database cross linking said one or more diagnostic factors and said one or more medical conditions that are arranged in different hierarchies in said medical evidence sources;	BMJ Clinical Intelligence creates a graph database cross-linking said one or more diagnostic factors and said one or more medical conditions that are arranged in different hierarchies in said medical evidence sources. The knowledge graph in BMJ’s Clinical Intelligence includes cross-links to various diagnostic factors and medical conditions. For example, on page 32 of BMJ’s Clinical Intelligence Presentation, BMJ shows that the knowledge graph in Clinical Intelligence includes many “diagnostic factors” and many “disease[s],” which are medical conditions. Knowledge Graph Architecture

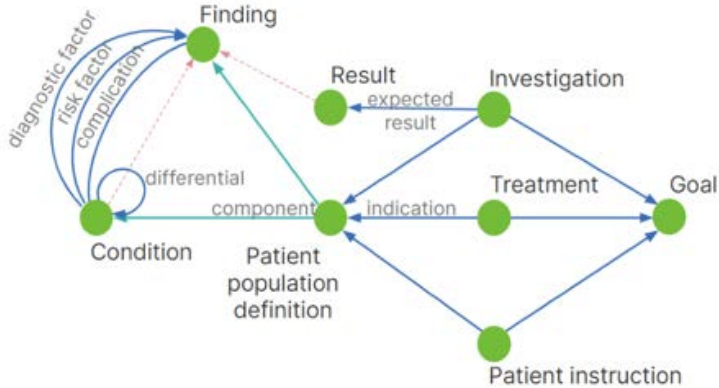
#	'882 Patent Claim	Accused Product
		(BMJ Presentation at 32.) In a specific example of part of the knowledge graph in Clinical Intelligence, BMJ shows that medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma” are cross-linked to each other and also cross-linked to the diagnostic factor of “wheezing.”  (BMJ Presentation at 31.) These medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma,” and the diagnostic factor of “wheezing” are arranged in different hierarchies in the original medical evidence sources. For example, “upper respiratory tract infections,” “chronic lung disease,” “asthma,” and “wheeze” are all included in the Table 1 of Publication 1.

#	'882 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) </td></tr><tr><td>Throat infections</td><td> ▶ Asthma ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion </td></tr><tr><td>Other respiratory</td><td> ▶ Glue ear ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.)	Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic)	Throat infections	▶ Asthma ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion	Other respiratory	▶ Glue ear ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
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15i	store each of said diagnostic factors and said medical conditions that are cross linked as its own node in said graph database,	BMJ Clinical Intelligence stores said diagnostic factors and said medical conditions that are cross-linked as its own node in said graph database. In the knowledge graph in Clinical Intelligence, medical conditions of “upper airway dysfunction,” “chronic obstructive lung disease,” and “asthma,” and the diagnostic factor of “wheezing” are cross-linked and are separate entries forming their own nodes in the graph database.														

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)
15j	said one or more medical conditions being linked to said diagnostic factors,	In BMJ Clinical Intelligence, said one or more medical conditions are linked to said diagnostic factors.  (BMJ Presentation at 31.)

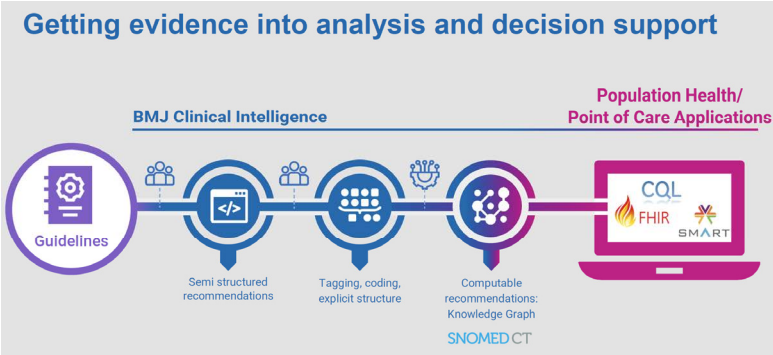
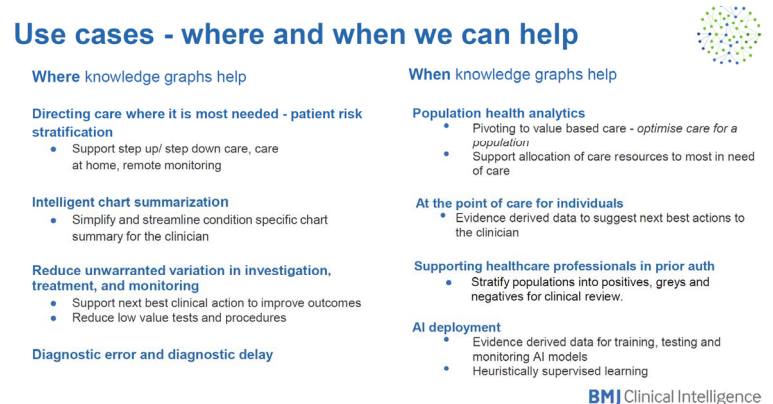
#	'882 Patent Claim	Accused Product
		Continuing to refer to page 31 of the Clinical Intelligence Presentation, in this claim chart, “wheezing” is used as an example of “said first diagnostic factor” and “asthma” is used as an example of “said first medical condition.” Hence, in the figure above the “Condition” node representing “asthma” is an example of a condition that is linked to the “Finding” node representing “wheezing” which is an example of a diagnostic factor. Thus the chart shows a medical condition begin linked to a diagnostic factor. An article from Healthcare IT Today reporting on a discussion with Derrick Leung, Business Development Director at BMJ Group, describes that BMJ’s “knowledge graphs map the dynamic relationships between symptoms, diseases, and treatments to provide a more flexible and accurate diagnostic pathway.” (Healthcare IT Today Article.)
15k	wherein each of said diagnostic factor nodes do not include information specific to said medical conditions;	Each of said diagnostic factor nodes in the BMJ Clinical Intelligence do not include information specific to said medical conditions.  (BMJ Presentation at 31.) Continuing to refer to page 31 of the Clinical Intelligence Presentation, the first entry “Finding” node representing “wheezing” does not show any information specific to asthma and such “Finding” node is independent of the “Condition” node representing asthma. In addition, this “Finding” node is directly linked to three different “Condition” nodes: “upper airway dysfunction,” “asthma,” and “chronic obstructive lung disease.” As such, “Finding” node “does not include information specific

#	'882 Patent Claim	Accused Product
		to” “asthma” that is represented by that “Condition” node. The “Finding” node is linked to several other “Condition” nodes. Knowledge Graph Architecture  (BMJ Presentation at 32.) This figure about BMJ’s “knowledge graph architecture” also illustrates that diagnostic factor and “condition” (or “disease”) are separate and independent entries.
151	for at least one of said diagnostic factors, store demographics required to indicate one of said medical conditions on the basis of said at least one diagnostic factor in a demographics node located between said one of said medical condition nodes and a node representing said at least one diagnostic factor;	BMJ Clinical Intelligence stores demographics required to indicate one of said medical conditions on the basis of said at least one diagnostic factor in a demographics node located between said one of said medical condition nodes and a node representing said at least one diagnostic factor The “Patient Population Definition” node type shown in BMJ’s Knowledge Graph Architecture is linked between a “Condition” node and other diagnostic factor nodes such as the “Investigation,” “Treatment,” and “Patient Instruction” nodes. (BMJ Presentation at 30.) This demonstrates that the BMJ knowledge graph stores the demographics in the form of a “Patient population definition” entry and that the demographics entry is linked to the medical condition and diagnostic factors entries as claimed.

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) Furthermore, BMJ’s case study with Sayvant demonstrates demographic-based risk stratification, for example using the patient’s “age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history)” to calculate a “modified HEART score” placing a specific patient in a demographic-linked risk category for a specific medical condition. This indicates that the demographics required to indicate the medical condition on the basis of diagnostic factors is stored in the BMJ knowledge graph.

#	'882 Patent Claim	Accused Product
		Sayvant context-aware decision support The complex array of findings - fever, AMS, hypotension, CKD, and supratherapeutic INR - is immediately processed by Sayvant's clinical intelligence platform, powered by BMJ clinical intelligence. 1. Prioritized diagnostic prompts: The system instantly filters noise and prompts for the most critical immediate actions, aligning with best practice protocols for AMS and fever: ◦ Infection source: Prompt for immediate Urine and Blood Cultures (Suspected Sepsis). ◦ Metabolic/Glucose: Immediate bedside Glucose check (critical for AMS). ◦ Toxicity/Anticoagulation: Flag the supratherapeutic INR (Risk of intracranial hemorrhage) and recommend immediate assessment for reversal based on the patient's AMS severity and fall risk. 2. Drug/Disease interaction synthesis: Sayvant cross-references the patient's CKD status with the anticipated sepsis workup. It warns against antibiotics that are contraindicated in severe renal impairment, offering a list of preferred initial antibiotic regimens that are safe. (BMJ Case Study at 4.)

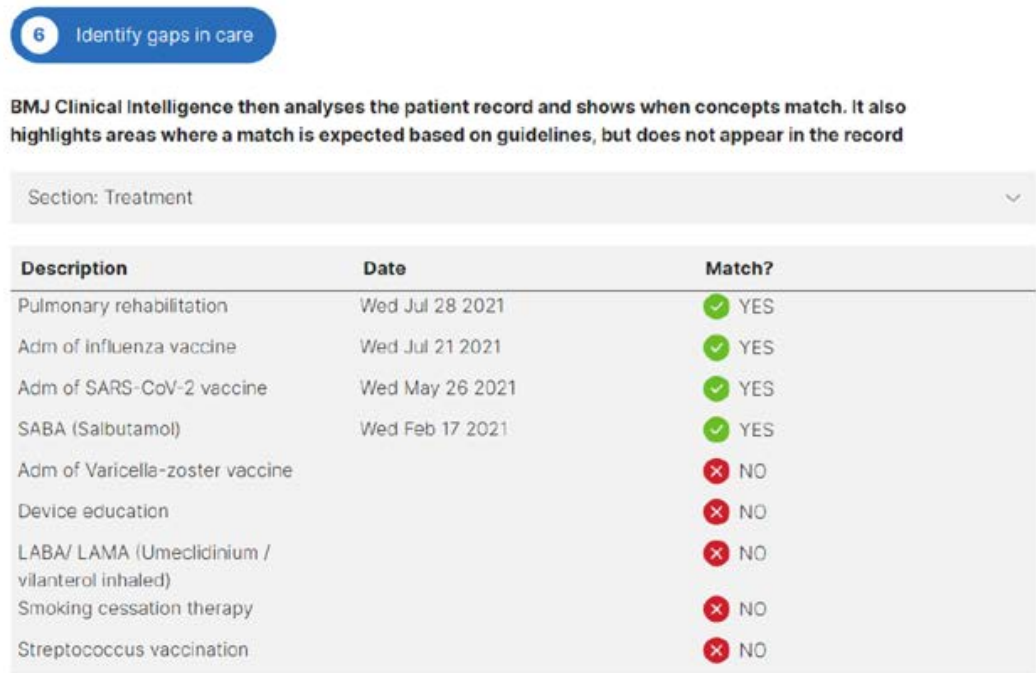
#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)
15m	establish one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said	BMJ establishes one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said diagnostic factors and said medical conditions that are linked in said graph database in order to generate a healthcare determination As shown in the Presentation, BMJ has established one or more APIs (e.g., CQL, FHIR, and SMART) for its graph database that allow software applications to integrate with the graph database to access its nodes and generate a healthcare determination.

#	'882 Patent Claim	Accused Product
	diagnostic factors and said medical conditions that are linked in said graph database in order to generate a healthcare determination; and	Getting evidence into analysis and decision support  (BMJ Presentation at 20.) BMJ indicates that the use cases of Clinical Intelligence include “directing care,” and “support[ing] next best clinical action.” (BMJ Presentation at 21.) This shows that the APIs enables software to generate “a healthcare determination,” as recited in the claim. Use cases - where and when we can help  (BMJ Presentation at 21.)

#	'882 Patent Claim	Accused Product
		How might BMJ Clinical Intelligence be used? BMJ Clinical Intelligence can be used in multiple contexts. It can be used in clinical decision support at the point of care via web services or as a SMART on FHIR application for individual patients. It can also be used as a knowledge resource in population health to address the care of cohorts of patients. At the point of care, the graph can be queried to look for deviations from a patient's expected course – for a care gap or untoward trend. And in turn, once it detects a deviation, it can suggest an early intervention to rectify the patient's care. (BMJ White Paper at 8.)
15n	match patient data from a patient medical chart to at least one of said diagnostic factor nodes and to said demographics node, in order to display said healthcare determination that said patient has one of said medical conditions.	BMJ Clinical Intelligence matches patient data from a patient medical chart to at least one of said diagnostic factor nodes and to said demographics node, in order to display said healthcare determination that said patient has one of said medical conditions. For example, BMJ's case study with Sayvant explains that "Sayvant integrates the BMJ clinical intelligence knowledge graph through a secure API connection," cross-referencing a specific patient's data (e.g., example patient Arthur's atrial fibrillation, medications, and presenting symptoms) against the knowledge graph to output a healthcare determination. For example, flagging "Acute Mesenteric Ischemia as a 'must-not-miss' differential" for that patient based on matching the patient's chart data to the graph's nodes. (BMJ Case Study at 3-6.) This example demonstrates BMJ Clinical Intelligence matching patient medical chart data to diagnostic factor nodes and displaying healthcare determinations of medical conditions, as claimed.

#	'882 Patent Claim	Accused Product
		Utilization of clinical AI solution and knowledge graph A better way of doing things is to use advanced technologies and knowledge resources to help deliver the right care for the patient at the right time and in the right place. The BMJ clinical intelligence knowledge graph is a structured, computable representation of BMJ Group's proprietary, continuously updated, evidence based clinical information that organizes knowledge and data to highlight connections among various medical entities. It contains millions of data points on diseases, symptoms, treatments, drug interactions, and genetic markers - to provide deep clinical insights, support differential diagnosis, and optimize treatment pathways. It is designed by human clinical experts without the use of AI, to translate clinical guidelines and evidence into a format that can be seamlessly integrated into healthcare systems to enhance clinical decision-making. Sayvant's AI-powered, voice-enabled clinical intelligence engine transforms documentation into a live, context-aware clinical decision support layer. It functions as an intelligent extension of clinical reasoning, providing standards-aligned clinical guidance while streamlining the charting process. Sayvant integrates the BMJ clinical intelligence knowledge graph through a secure API connection, delivering real-time, evidence-based clinical intelligence to emergency medicine physicians. (BMJ Case Study at 3.)

#	'882 Patent Claim	Accused Product
		The BMJ clinical intelligence knowledge graph insight generation The BMJ clinical intelligence knowledge graph, containing millions of interconnected data points on diseases, symptoms, treatments, drug interactions, and genetic markers, processed the input. The resource provided the following initial insights: • Differential diagnosis generation: Based on the high-risk combination of atrial fibrillation and the specific clinical presentation of "pain out of proportion to physical exam" (severe subjective pain with a soft abdomen), the system prioritized a critical, time-sensitive diagnosis. While common causes like Gastritis or Diverticulitis were considered, the system flagged Acute Mesenteric Ischemia as a "must-not-miss" differential that required immediate exclusion. • Drug-disease interaction analysis: Sayvant cross-referenced the patient's current medications (Metoprolol) against the clinical presentation. It flagged that the beta-blocker (Metoprolol) could potentially mask the expected tachycardic response to severe pain or sepsis, falsely reassuring the clinician about the patient's hemodynamic stability. • Recommended diagnostic path: The system prioritized a targeted vascular investigation rather than a standard abdominal workup. It recommended further blood tests and a specific imaging protocol to rule out vascular occlusion: ◦ Serum lactate (to assess for tissue ischemia) ◦ Imaging: CT Angiography (CTA) of the Abdomen/Pelvis (specifically requesting arterial phase to evaluate the superior mesenteric artery). Outcome and treatment Following the Sayvant and BMJ clinical intelligence insights, the treating physician ordered the specific CTA protocol rather than a standard CT abdomen. Key diagnostic findings: • Serum lactate: Elevated (3.2 mmol/L), indicating tissue hypoperfusion. • CT angiography: Revealed an acute embolic occlusion of the proximal Superior Mesenteric Artery (SMA), a finding strongly correlating with the system's flagged association between Atrial Fibrillation and sudden abdominal pain.

#	'882 Patent Claim	Accused Product																														
		(BMJ Case Study at 6.) Additionally the Presentation explains that “BMJ Clinical Intelligence [] analyses the patient record and shows when concepts match.” (BMJ Presentation at 43.) The patient record corresponds to a patient medical chart, as described in the claim as being matched to nodes in the knowledge graph in order to display a healthcare determination.  The screenshot shows a button labeled '6 Identify gaps in care'. Below it, text states: 'BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record'. A dropdown menu is set to 'Section: Treatment'. The table below shows treatment descriptions, dates, and match status. <table border="1"> <thead> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> </thead> <tbody> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </tbody> </table> (BMJ Presentation at 43.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
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Streptococcus vaccination		✗ NO																														

#	'882 Patent Claim	Accused Product
16	16. A computer system as recited in claim 15, wherein the instructions, when executed, further	On information and belief, BMJ Clinical Intelligence determines a rank of said likelihood that said patient has one of said medical conditions by reference to a node intermediate between one of said medical condition nodes and said diagnostic factor nodes that holds said rank of said diagnostic factors.

#	'882 Patent Claim	Accused Product
	cause the one or more processors to: determine a rank of said likelihood that said patient has one of said medical conditions by reference to a node intermediate between one of said medical condition nodes and said diagnostic factor nodes that holds said rank of said diagnostic factors.	As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 15. BMJ's Knowledge Graph Architecture page indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition. The page shows the intermediate ranking/strength categories (e.g., "Strong"/"Other" risk factors, "1st to consider"/"Other to consider" investigations) positioned between medical condition nodes and diagnostic factor nodes. (BMJ Website: Knowledge Graph Architecture.) In addition, BMJ's case study with Sayvant demonstrates the output of a calculated likelihood/risk score (e.g., the "modified HEART score" placing a patient in a "moderate risk" category) derived by reference to such ranked diagnostic factors.

#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: • Order serial Troponin levels (at 0 and 3 hours). • Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

#	'882 Patent Claim	Accused Product
17	17. A computer system as recited in claim 15, wherein the instructions, when executed, further cause the one or more	On information and belief, BMJ Clinical Intelligence performs said extract said plurality of diagnostic factors using natural language processing (NLP) that is initialized using existing diagnostic factor nodes of said graph database. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 15.

#	'882 Patent Claim	Accused Product
	processors to: perform said extract said plurality of diagnostic factors using natural language processing (NLP) that is initialized using existing diagnostic factor nodes of said graph database.	Evidence shows that BMJ uses extensive natural language processing (NLP) techniques to process text. For example, BMJ hires editors that use common NLP tools to process text. In a job posting dated July 1, 2024, BMJ described the responsibilities included “Formatting text using xml editing packages (currently eXtyles).” Responsibilities • Close editing of detailed scientific text to house style, checking text and data for accuracy, restructuring, and rewriting as necessary • Formatting text using xml editing packages (currently eXtyles) • Handling data-heavy illustrations and tables • Liaising with academic authors <i>BMJ Group Job Overview</i>, available at https://jobsearch.bmj.com/jobs/job/Technical-Editor-The-BMJ/788 (last visited September 2, 2026) (“BMJ Website: Job Overview”). BMJ’s editors use NLP tools (e.g., eXtyles, Kriya) to process narrative text from medical evidence sources, and BMJ’s Knowledge Graph Architecture page shows over “11700+” diagnostic factors stored as individual nodes and linked to medical condition nodes (e.g., the “asthma” condition node linked to the “wheezing” finding node). The BMJ White Paper explains that language models (e.g. NLP) can be “guided by structured knowledge coming from the knowledge graph” which is consistent with initializing an NLP using the information in the graph. (BMJ White Paper at 11.) New research is looking at how large language models and knowledge graphs can complement one another. And the research is showing that they can do so in a variety of interesting ways. For example, the learning from a large language model might be guided by structured knowledge coming from the knowledge graph to make the resulting large language model far more robust and allow access to newer or updated information held in the knowledge graph. (BMJ White Paper at 11.)

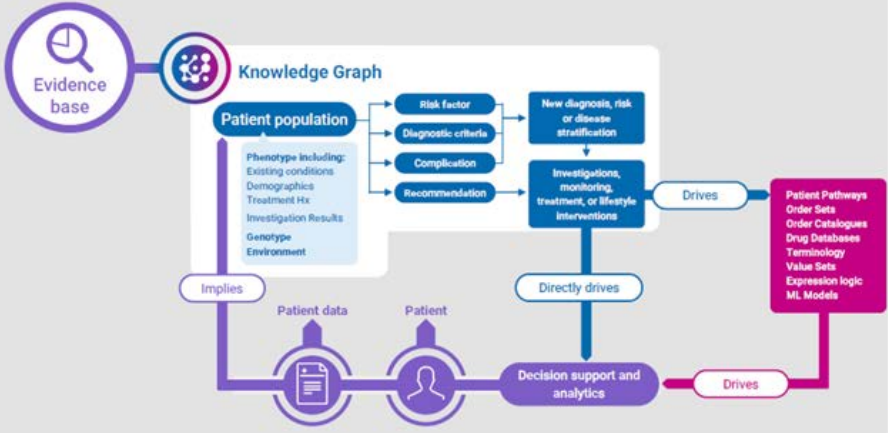
#	'882 Patent Claim	Accused Product
18	18. A computer system as recited in claim 15 wherein said graph database includes more than twenty thousand nodes.	The graph database of BMJ Clinical Intelligence includes more than twenty thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 15. BMJ's "Knowledge Graph Architecture" slide reports node counts by category: 905 disease, 7,555 risk factor, 11,705 diagnostic factor, 9,339 investigation, 11,330 differential, 9,062 treatment action, and 5,695 complication. (BMJ Presentation at 32.) The seven listed categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand entries. Furthermore, another version of the figure shown in the BMJ website makes clear that the listed entry numbers are floors, not totals, by including plus symbols after the node counts in the various categories. (BMJ Website: Knowledge Graph Architecture.) Knowledge Graph Architecture <pre> graph LR Disease[905 Disease] RiskFactor[7555 Risk factor] --> Strong[Strong] RiskFactor --> Other1[Other] ScreeningAction[Screening action] --> Primary1[Primary] PreventionAction[Prevention action] --> Secondary[Secondary] DiagnosticFactor[11705 Diagnostic factor] --> Key[Key] DiagnosticFactor --> Other2[Other] Key --> Common[Common] Key --> Uncommon[Uncommon] Investigation[9339 Investigation] --> Initial[Initial] Investigation --> Subsequent[Subsequent] DiagnosticCriteria[Diagnostic Criteria] Differential[11330 Differential] --> Inpatient[Inpatient] Differential --> Outpatient[Outpatient] Differential --> Ongoing[Ongoing] Differential --> Criteria[Criteria] TreatmentAction[9062 Treatment action] --> Inpatient TreatmentAction --> Outpatient TreatmentAction --> Ongoing TreatmentAction --> Criteria Inpatient --> FirstLine[1st Line] Inpatient --> Plus[Plus] Inpatient --> Consider[Consider] Outpatient --> FirstLine Outpatient --> Plus Outpatient --> Consider Ongoing --> FirstLine Ongoing --> Plus Ongoing --> Consider Criteria --> FirstLine Criteria --> Plus Criteria --> Consider FirstLine --> Primary2[Primary] FirstLine --> ANDOR[AND/OR] Plus --> Primary2 Plus --> ANDOR Consider --> Primary2 Consider --> ANDOR MonitoringAction[Monitoring action] Complication[5695 Complication] --> ShortTerm[Short term] Complication --> LongTerm[Long term] Complication --> Variable[Variable] Prognosis[Prognosis] --> HighRisk[High risk] Prognosis --> MediumRisk[Medium risk] Prognosis --> LowRisk[Low risk] </pre> (BMJ Presentation at 32.)

#	'882 Patent Claim	Accused Product
		(BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
19	19. A computer system as recited in claim 15 wherein said graph database includes more than one hundred thousand nodes.	On information and belief, the graph database of BMJ Clinical Intelligence includes more than one hundred thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 15. On its Clinical Intelligence website, BMJ shows an example of its knowledge graph architecture. BMJ indicates that the “[n]umbers indicate the current approximate number of relationships in each area” and it will “continue to expand coverage.” Aggregating the approximate numbers and not including BMJ’s continued expended coverage, the total number of relationships described in BMJ’s knowledge graph has exceeded 100,000.

#	'882 Patent Claim	Accused Product
		Knowledge graph architecture A clinical perspective on the rich scope of relationships covered in the graph both in terms of breadth and depth. BMJ Clinical Intelligence knowledge graph covers the patient management pathway from prevention through diagnosis to potential complications. Numbers indicate the current approximate number of relationships in each area. We continue to expand coverage. (BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
20	20. A computer system as recited in claim 15 wherein said healthcare determination is a recommendation, an evaluation, a result, or a conclusion.	In BMJ Clinical Intelligence, said healthcare determination is a recommendation, an evaluation, a result, or a conclusion. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 15. For example, BMJ's patient centred cycle slide shows "Recommendation" as an output of the knowledge graph, which indicates that one of the possible healthcare determinations in the BMJ Clinical Intelligence system is a recommendation. (BMJ Presentation at 45.)

#	'882 Patent Claim	Accused Product
		Sustainable patient centred cycle  (BMJ Presentation at 45.) Examples in the BMJ presentation also show that the healthcare determinations output by the BMJ Clinical Intelligence system can include results or conclusions. For example, the presentation shows an example in which BMJ reports results/conclusions about whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.)

#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) The BMJ knowledge graph can also “identify deviations in patient care, suggest interventions, and facilitate early diagnosis.” (BMJ White Paper at 3.) Additionally BMJ clinical intelligence can “recommend evidence-based interventions for both cohorts and individuals.” (BMJ Clinical Intelligence Website) Recommending interventions is consistent with outputting a recommendation as claimed. BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis. In population health, the graph enables comprehensive monitoring, analysis, and early intervention, ensuring efficient resource utilization. (BMJ White Paper at 3.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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#	'882 Patent Claim	Accused Product
		It can be applied to a whole population or used to stratify cohorts with a given condition such as diabetes. BMJ clinical intelligence can further stratify patients – identifying those who are not proceeding as expected in their care journey. Where there are care gaps or unexpected trends, BMJ clinical intelligence can recommend evidence-based interventions for both cohorts and individuals, as it covers entire pathways of care. This can help get cohorts of patients back on the right track. (BMJ Website: Population Health.)

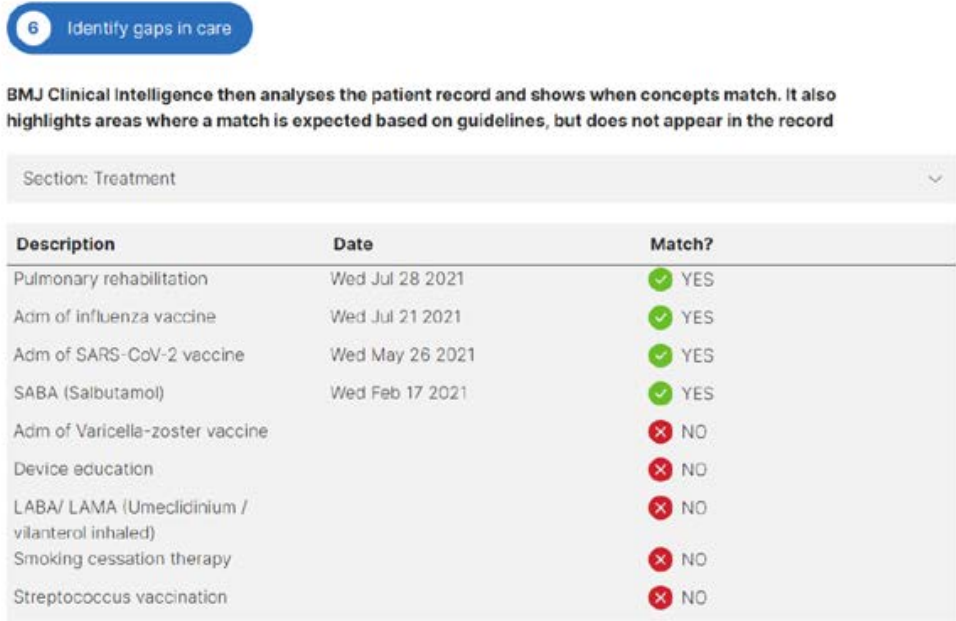
#	'882 Patent Claim	Accused Product
21pre	21. A computer system for determining a state of a patient, said computer system comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, for determining a state of a patient. For example, BMJ's case study with Sayvant demonstrates that BMJ Clinical Intelligence is used to determine a patient's clinical state in real time, including generating "differential diagnosis generation" and "risk stratification" based on a specific patient's presenting findings, comorbidities, and medications (e.g., the Jean, Arthur, and Eric case studies).

#	'882 Patent Claim	Accused Product
		The BMJ clinical intelligence knowledge graph insight generation The BMJ clinical intelligence knowledge graph, containing millions of interconnected data points on diseases, symptoms, treatments, drug interactions, and genetic markers, processed the input. The resource provided the following initial insights: • Differential diagnosis generation: Based on the high-risk combination of atrial fibrillation and the specific clinical presentation of "pain out of proportion to physical exam" (severe subjective pain with a soft abdomen), the system prioritized a critical, time-sensitive diagnosis. While common causes like Gastritis or Diverticulitis were considered, the system flagged Acute Mesenteric Ischemia as a "must-not-miss" differential that required immediate exclusion. • Drug-disease interaction analysis: Sayvant cross-referenced the patient's current medications (Metoprolol) against the clinical presentation. It flagged that the beta-blocker (Metoprolol) could potentially mask the expected tachycardic response to severe pain or sepsis, falsely reassuring the clinician about the patient's hemodynamic stability. • Recommended diagnostic path: The system prioritized a targeted vascular investigation rather than a standard abdominal workup. It recommended further blood tests and a specific imaging protocol to rule out vascular occlusion: ◦ Serum lactate (to assess for tissue ischemia) ◦ Imaging: CT Angiography (CTA) of the Abdomen/Pelvis (specifically requesting arterial phase to evaluate the superior mesenteric artery). Outcome and treatment Following the Sayvant and BMJ clinical intelligence insights, the treating physician ordered the specific CTA protocol rather than a standard CT abdomen. Key diagnostic findings: • Serum lactate: Elevated (3.2 mmol/L), indicating tissue hypoperfusion. • CT angiography: Revealed an acute embolic occlusion of the proximal Superior Mesenteric Artery (SMA), a finding strongly correlating with the system's flagged association between Atrial Fibrillation and sudden abdominal pain. (BMJ Case Study at 6.) BMJ's White Paper also describes "projecting the data against the knowledge graph and getting a snapshot of the patient's current state." (BMJ White Paper at 9.) BMJ adds that knowledge graphs

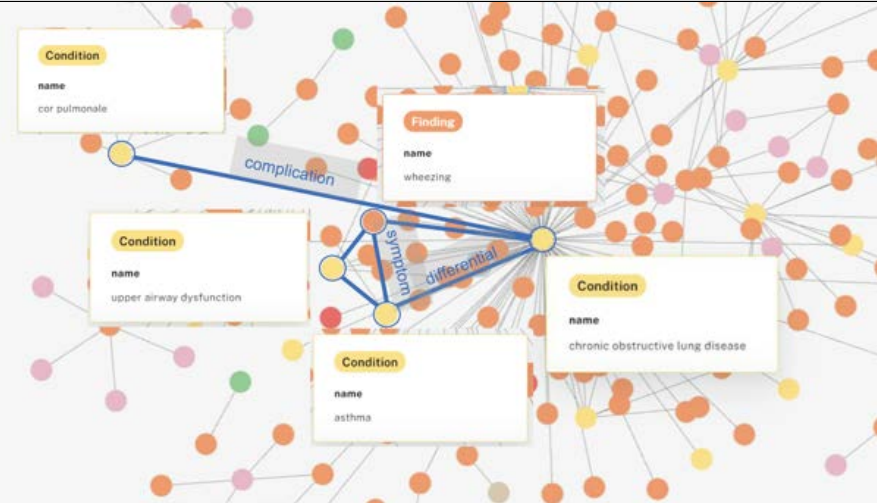
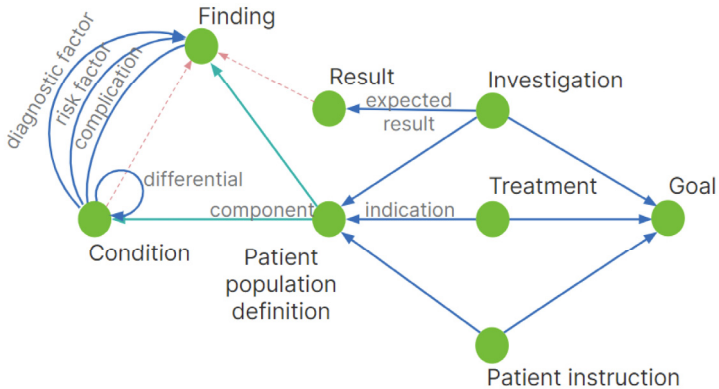
#	'882 Patent Claim	Accused Product
		allow it “to project the entire patient data set against the graph and to get a better picture of the patient.” (BMJ White Paper at 9.) These descriptions demonstrate that BMJ is using a computer system to determine a state of a patient, as claimed. Knowledge graphs also give us the ability to project the entire patient data set against the graph and to get a better picture of the patient – a more comprehensive picture than what might emerge from using forward and backward chaining through rule bases. When we see the whole patient state reflected against the graph, it can tell us for example that we expected to know a certain fact about the patient but we do not see it or we do not see that a relevant procedure or investigation has been considered – as it is not seen in the data. This is a patient-centered, data-driven approach – projecting the data against the knowledge graph and getting a snapshot of the patient’s current state, and telling the end user who may or may not be familiar with that patient what are reasonable expectations for their care delivery or care journey. (BMJ White Paper at 9.)
21a	one or more processors; and	BMJ Clinical Intelligence comprises one or more processors. Based on the figure below from BMJ’s Presentation, CI is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate CI. Getting evidence into analysis and decision support (BMJ Presentation at 20.)
21b	memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause	BMJ Clinical Intelligence comprises memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to perform the claimed steps that follow.

#	'882 Patent Claim	Accused Product
	the one or more processors to:	Based on the figure below from BMJ's Presentation, CI is clearly a computer product. Hence, BMJ uses "processors" and "memory that stores instructions" to build and operate CI. Getting evidence into analysis and decision support (BMJ Presentation at 20.)
21c	receive a portion of a patient electronic health record (EHR) to produce a plurality of diagnostic factors known to be present or absent in said patient;	BMJ Clinical Intelligence receives a portion of a patient electronic health record (EHR) to produce a plurality of diagnostic factors known to be present or absent in said patient. For example, BMJ shows an example of using information drawn from the patient's record (e.g., current smoker status, family history of heart attack, systolic blood pressure, CRP level, total cholesterol, LDL, and HDL) as an input to the BMJ Clinical Intelligence system. These are patient diagnostic factors extracted from the patient's electronic record and received by the BMJ system. (BMJ Presentation at 26.)

#	'882 Patent Claim	Accused Product
		Point of Care Applications FHIR Structured Data Capture SMART on FHIR app store model 5 years Electronic Patient Record 30 year maturity Supporting Patient Administration Supporting the clinician  The screenshot displays a patient care application interface. At the top, it says 'Point of Care Applications'. Below this, there are three purple bars: 'FHIR Structured Data Capture', 'SMART on FHIR app store model 5 years', and 'Electronic Patient Record 30 year maturity'. The interface is divided into two main sections: 'Supporting Patient Administration' on the left and 'Supporting the clinician' on the right. The 'Supporting the clinician' section shows a patient's clinical data. It includes a 'Patient info' section with 'Name: Carl Lee', 'Gender: M', 'Age: 75', and 'DOB: 1950-09-30'. Below this, there are two checkboxes: 'Current smoker?' (unchecked) and 'Family history of heart attack?' (checked). The 'Your Results' section shows four horizontal bar charts: 'COPD level test' (blue bar, value 2.0), 'Total cholesterol level' (green bar, value 141), 'LDL "bad" cholesterol' (green bar, value 35), and 'HDL "good" cholesterol' (green bar, value 54). Each bar chart has a scale from 'Low risk' to 'High risk' or 'Very high'. (BMJ Presentation at 26.) BMJ states that “BMJ Clinical Intelligence then analyses the patient record and shows when concepts match.” For example the BMJ Presentation at slide 43 shows a column that indicates with a “yes” or a “no” whether certain diagnostic factors match the patient record. (BMJ Presentation at 43.) This is consistent with using the portion of a patient electronic health record to produce diagnostic factors known to be present or absent in a patient.

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		 BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table border="1"> <thead> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> </thead> <tbody> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </tbody> </table> (BMJ Presentation at 43.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of Influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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21d	match said diagnostic factors to entries in a graph database that represent said diagnostic factors, each of said diagnostic factor entries being cross linked to at least one medical condition entry in said graph database representing a medical condition and not including information specific to said medical condition to which said	BMJ Clinical Intelligence matches said diagnostic factors to entries in a graph database that represent said diagnostic factors, each of said diagnostic factor entries being cross linked to at least one medical condition entry in said graph database representing a medical condition and not including information specific to said medical condition to which said each diagnostic factor entry is linked. For example, BMJ illustrates matching diagnostic factors to “Finding” nodes which are entries in the graph database. In the example provided in the BMJ Presentation, the clinician first selects "Clinical area: COPD" as the basis for the query, matching a portion of the query to the Condition node for COPD. (BMJ Presentation at 35.) The rest of the workflow is built on that match. The system identifies the patients whose records match COPD, reporting that 12 of 75 patients have COPD or spirometry listed in their record. (BMJ Presentation at 40.)																														

#	'882 Patent Claim	Accused Product																														
	each diagnostic factor entry is linked,	Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention. 1 Choose a clinical area Dr Smith chooses an area of clinical interest Clinical area: COPD (BMJ Presentation at 35.) The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total patients Matching Quality Metric terms Clinical description COPD12 Spirometry9 The logic is used to highlight the patients that have COPD but not spirometry <table><thead><tr><th>Patient ID</th><th>Age</th><th>Sex</th><th>COPD?</th><th>Spirometry?</th><th>Matched to Quality Metric?</th></tr></thead><tbody><tr><td>Liam Smith</td><td>44</td><td>M</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Mason Anderson</td><td>23</td><td>M</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Scarlett Garcia</td><td>42</td><td>F</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Aiden Jones</td><td>55</td><td>M</td><td>Y</td><td>Y</td><td>✓ YES</td></tr></tbody></table> (BMJ Presentation at 40.) BMJ’s knowledge graph also supports matching to finding nodes. The graph view shows a “Finding” node for wheezing matched to the patient factors in the input query and linked to a Condition node for asthma by a “symptom” edge. (BMJ Presentation at 31.)	Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?	Liam Smith	44	M	Y	N	✗ NO	Mason Anderson	23	M	Y	N	✗ NO	Scarlett Garcia	42	F	Y	N	✗ NO	Aiden Jones	55	M	Y	Y	✓ YES
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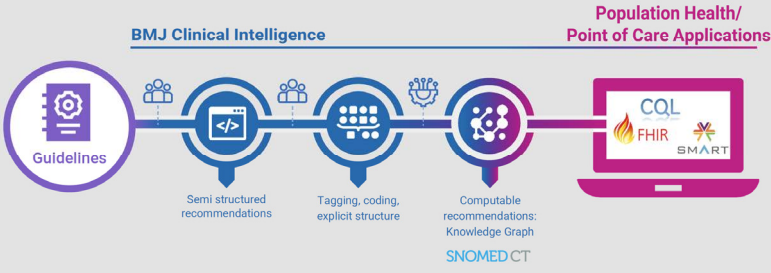
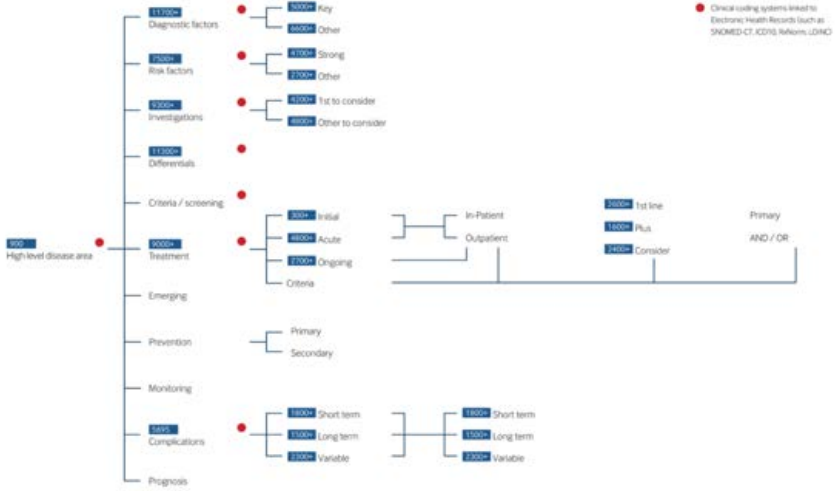
#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) BMJ's knowledge graph architecture diagram shows the "Investigation" node connected to the "Condition" node indirectly, through an intervening "Patient population definition" node, thus keeping the diagnostic factor investigation node separate from specific information about the medical condition details. (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 30.)

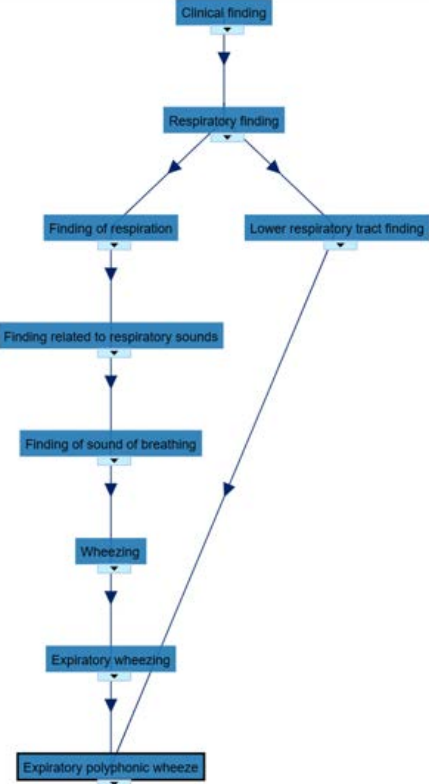
#	'882 Patent Claim	Accused Product
21e	wherein said diagnostic factor entries and said medical condition entries originate in at least one medical evidence journal,	In BMJ Clinical Intelligence, said diagnostic factor entries and said medical condition entries originate in at least one medical evidence journal.  BMJ Journals https://journals.bmj.com BMJ Journals: Home Our peer reviewed journals include high impact, selective titles that publish innovative research, comprehensive reviews, educational content and case studies. (Website: BMJ Journals.) From the title of BMJ Journals website, BMJ operates a number of journals. The three medical publication examples are published by BMJ Open. It is an “online, open access journal,” which is one of the examples of a published journal.   BMJ Open is an online, open access journal, dedicated to publishing medical research from all disciplines and therapeutic areas. (Website: BMJ Open.)

#	'882 Patent Claim	Accused Product
21f	wherein said at least one medical evidence journal provides different taxonomies that arrange one or more of said diagnostic factors entries and/or one or more of said medical condition entries in different hierarchies,	In BMJ Clinical Intelligence, the said at least one medical evidence journal provides different taxonomies that arrange one or more of said diagnostic factors entries and/or one or more of said medical condition entries in different hierarchies Below are two examples of medical evidence sources that are used by BMJ which have different taxonomies that arrange “wheezing” in different hierarchies. While “wheezing” is used as an example, BMJ’s Clinical Intelligence uses many different diagnostic factors and medical conditions that will equally meet this claim element. The first example of a medical evidence source is Publication 1. The first medical evidence source puts “wheezing-ill” in a first taxonomy that is based on the hierarchy of “classification of consultation.” See Figure 1 at the bottom of the screen capture.

#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 3 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] B --> D[URT] C --> E[URT] C --> F[LRT] C --> G[Wheeze-ill] C --> H[Throat infections] C --> I[Otitis media] C --> J[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J. et al. <i>BMJ Open</i> 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 3 (Publication 1 at 3.) The first medical evidence source also puts “wheeze” and wheeze-related conditions into another taxonomy, which is a Table 1 that is based on the hierarchy of respiratory classification categories.

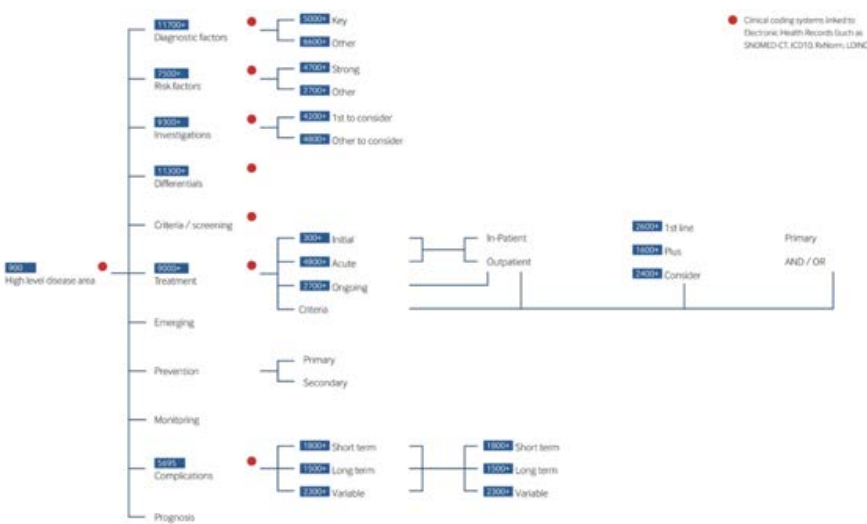
#	'882 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr><tr><td>Throat infections</td><td> ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear </td></tr><tr><td>Other respiratory</td><td> ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.) The second example of a medical evidence source is SNOMED CT, which is used by BMJ Clinical Intelligence as shown in the graph below.	Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma	Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear	Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
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#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) SNOMED-CT is also explicitly mentioned in BMJ’s Clinical Intelligence website regarding the knowledge graph architecture as being linked to clinical coding systems.  (BMJ Website: Knowledge Graph Architecture.) The second medical evidence source, SNOMED CT, puts “wheezing” in another taxonomy that is based on the hierarchy of respiratory sounds. The link below reveals a screen capture of the “Visualization” tab that illustrates this hierarchy.

#	'882 Patent Claim	Accused Product
		 <pre> graph TD A[Clinical finding] --> B[Respiratory finding] B --> C[Finding of respiration] B --> D[Lower respiratory tract finding] C --> E[Finding related to respiratory sounds] E --> F[Finding of sound of breathing] F --> G[Wheezing] G --> H[Expiratory wheezing] H --> I[Expiratory polyphonic wheeze] D --> I </pre> (Website: Bioportal). In the two medical evidence sources above, wheezing is arranged in different hierarchies based on different concepts and is associated with different other diagnostic factors and/or medical conditions such as “throat infection” in the first medical evidence source (Publication 1), and “expiratory polyphonic wheeze” in the second medical evidence source (SNOMED).
21g	and wherein a first diagnostic factor entry is discussed in part of said at least one medical evidence journal as being indicative of a first medical condition entry;	In BMJ Clinical Intelligence, a first diagnostic factor is discussed in part of said medical evidence journal as being indicative of a first medical condition entry. In Publication 1, the authors discussed that “wheeze” is indicative of “Asthma,” which is a medical condition.

#	'882 Patent Claim	Accused Product
		Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma (Publication 1 at 4.) While in this claim chart “wheeze” is used as an example of “first diagnostic factor” recited in the claim and “asthma” is used as “first medical condition” recited in the claim, BMJ’s Clinical Intelligence uses many more examples of diagnostic factors and medical conditions that will meet the claim element.
21h	establish one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said diagnostic factor entries and said medical condition entries in said graph database in order to generate a healthcare determination;	BMJ establishes one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said diagnostic factor entries and said medical condition entries in said graph database in order to generate a healthcare determination. As shown in the Presentation, BMJ has established one or more APIs (e.g., CQL, FHIR, and SMART) for its graph database that allow software applications to integrate with the graph database to access its nodes and generate a healthcare determination. Getting evidence into analysis and decision support (BMJ Presentation at 20.) BMJ indicates that the use cases of Clinical Intelligence include “directing care,” and “support[ing] next best clinical action.” (BMJ Presentation at 21.) This shows that the APIs enables software to generate “a healthcare determination,” as recited in the claim.

#	'882 Patent Claim	Accused Product
		Use cases - where and when we can help  Where knowledge graphs help Directing care where it is most needed - patient risk stratification - Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization - Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring - Support next best clinical action to improve outcomes - Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics - Pivoting to value based care - <i>optimise care for a population</i> - Support allocation of care resources to most in need of care At the point of care for individuals - Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth - Stratify populations into positives, greys and negatives for clinical review. AI deployment - Evidence derived data for training, testing and monitoring AI models - Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) How might BMJ Clinical Intelligence be used? BMJ Clinical Intelligence can be used in multiple contexts. It can be used in clinical decision support at the point of care via web services or as a SMART on FHIR application for individual patients. It can also be used as a knowledge resource in population health to address the care of cohorts of patients. At the point of care, the graph can be queried to look for deviations from a patient's expected course – for a care gap or untoward trend. And in turn, once it detects a deviation, it can suggest an early intervention to rectify the patient's care. (BMJ White Paper at 8.)
21i	traverse a link from said each matched diagnostic factor entry to its linked medical condition and collecting a weight value indicative that said each matched diagnostic	On information and belief, BMJ Clinical Intelligence traverses a link from said each matched diagnostic factor entry to its linked medical condition and collects a weight value indicative that said each matched diagnostic factor entry is caused by its linked medical condition. BMJ's Knowledge Graph Architecture page indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received

#	'882 Patent Claim	Accused Product
	factor entry is caused by its linked medical condition;	weighting of a likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition and these weighted categories are retrieved by traversing the links between the diagnostic factor nodes and the condition nodes. The page shows the intermediate ranking/strength categories (e.g., “Strong”/“Other” risk factors, “1st to consider”/“Other to consider” investigations) positioned between medical condition nodes and diagnostic factor nodes.  (BMJ Website: Knowledge Graph Architecture.)
21j	sum all collected weight values for each linked medical condition to produce a total weight value for said each linked medical condition; and	On information and belief, BMJ Clinical Intelligence sums all collected weight values for each linked medical condition to produce a total weight value for said each linked medical condition. For example, BMJ’s case study with Sayvant illustrates summing collected weight values with the “modified HEART score,” which combines multiple weighted patient risk factors (age, symptom characteristics, ECG findings, smoking history, family history) into a single aggregate score value associated with the patient's risk of a given medical condition (Acute Coronary Syndrome).

#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)
21k	display on a computing device said linked medical conditions in order of total weight value as said healthcare determination.	On information and belief, BMJ Clinical Intelligence displays on a computing device said linked medical conditions in order of total weight value as said healthcare determination. BMJ's case study with Sayvant shows the system outputting the patient's calculated HEART score together with the associated risk category (e.g., "moderate risk"), which is then used to drive the recommended next diagnostic and treatment steps (i.e., the healthcare determination). The risk categories are consistent with the weighted value of the determinations as claimed.

#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

#	'882 Patent Claim	Accused Product
22	22. A computer system as recited in claim 21, wherein the instructions, when executed, further cause the one or more	On information and belief, BMJ Clinical Intelligence displays in association with each linked medical condition its corresponding total weight value. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21.

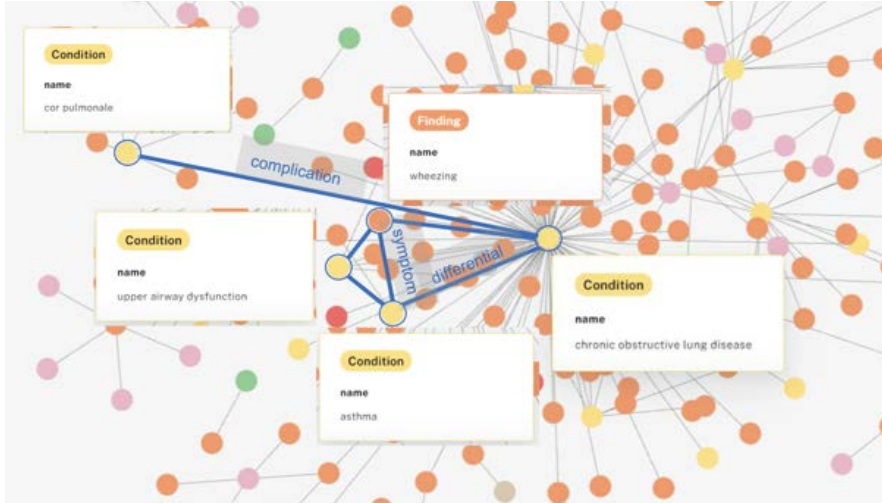
#	'882 Patent Claim	Accused Product
	processors to: display in association with each linked medical condition its corresponding total weight value.	BMJ's case study with Sayvant shows the patient's calculated HEART score displayed together with the identified risk category (consistent with a weight value of the corresponding linked medical condition), associating the output medical condition/diagnosis consideration with its final ranking value. BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

#	'882 Patent Claim	Accused Product
23	23. A computer system as recited in claim 21, wherein the instructions, when executed, further cause the one or more processors to: for each present diagnostic factor, traverse upward in a medical ontology link found in said matched diagnostic factor entry in order to infer other diagnostic factors present in said patient and match these other diagnostic factors to other diagnostic factor entries in said graph database.	For each present diagnostic factor, BMJ Clinical Intelligence traverses upward in a medical ontology link found in said matched diagnostic factor entry in order to infer other diagnostic factors present in said patient and matches these other diagnostic factors to other diagnostic factor entries in said graph database. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. BMJ's knowledge graph incorporates SNOMED CT ontology links (e.g., the "wheezing" SNOMED CT hierarchy) that allow upward traversal from a specific finding to broader or related ontology concepts, consistent with inferring related diagnostic factors.

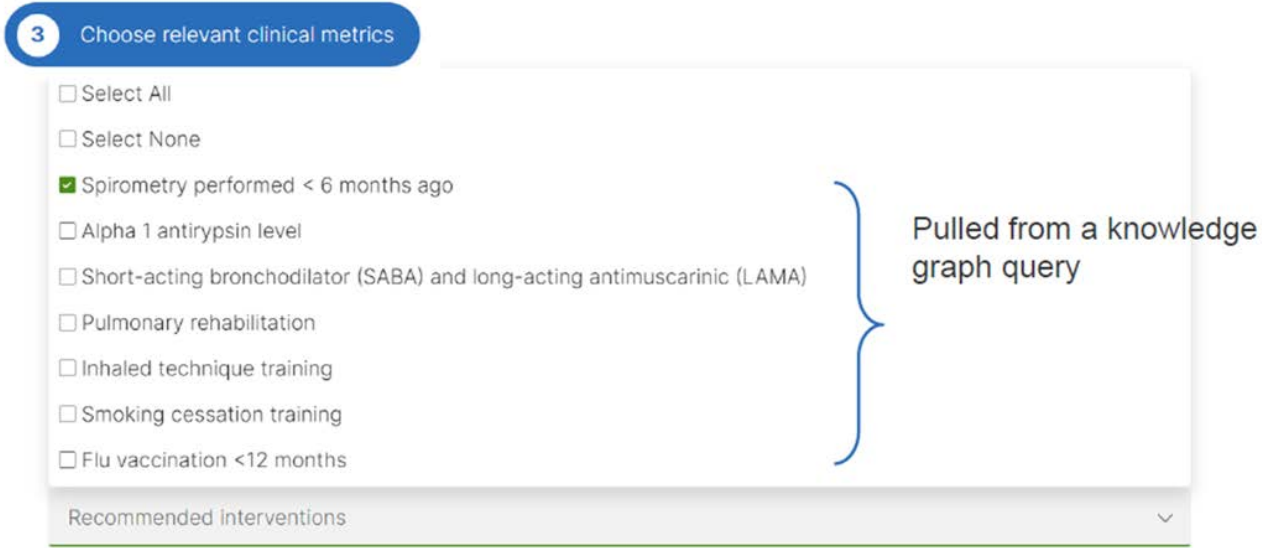
#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 3 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] C --> D[URTIs] C --> E[LRTIs] C --> F[Wheeze-ill] C --> G[Throat infections] C --> H[Otitis media] C --> I[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J, et al. <i>BMJ Open</i> 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 BMJ Open: first published as 10.1136/bmjopen-2015-008160 on 21 August 2015. Downloaded from http://bmjopen.bmj.com/ on August 21, 2025 by guest. Protected by copyright. Including for users related to text and data mining, AI training, and similar technologies. 3

(Publication 1 at 3.)

#	'882 Patent Claim	Accused Product		
24	24. A computer system as recited in claim 21 wherein each said diagnostic factor entry includes at least one synonym of said diagnostic factor.	On information and belief, in BMJ Clinical Intelligence, said each diagnostic factor entry may include at least one synonym of said diagnostic factor represented by said each diagnostic factor entry. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. BMJ uses SNOMED-CT in its tagging and coding pipeline for the knowledge graph. SNOMED CT concept entries inherently include synonym descriptions as part of their standard data model. For example, the Presentation describes tagging, coding, explicit structure leading to “Computable recommendations: Knowledge Graph” with “SNOMED CT.” (BMJ Presentation at 20.) To the extent BMJ incorporates SNOMED CT concept data into its diagnostic-factor entries, those entries may include at least one SNOMED CT synonym. Getting evidence into analysis and decision support (BMJ Presentation at 20.) Additionally, BMJ’s own materials use both “wheeze” (in source publications) and “wheezing” (in the knowledge graph Finding node), indicating that BMJ’s editorial pipeline handles terminological variants of the same clinical concept. For example, in Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition. <table><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr></table>	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma
Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma			

#	'882 Patent Claim	Accused Product
		In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and showed that “wheezing” is a “symptom” of “asthma.”  (BMJ Presentation at 31.)

#	'882 Patent Claim	Accused Product
25	25. A computer system as recited in claim 21 wherein each said diagnostic factor entry includes a temporality attribute, a negation attribute or an experience attribute.	In BMJ Clinical Intelligence, said each diagnostic factor entry includes a temporality attribute, a negation attribute or an experiencer attribute. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ’s metric list, which it states is “[p]ulled from a knowledge graph query,” includes “Spirometry performed < 6 months ago” and “Flu vaccination <12 months.” (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 39.) BMJ also stores negation attributes for diagnostic factor entries. For example, the presentation shows an example in which BMJ reports whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.) “No” values stored in the diagnostic factor entries demonstrate negation attributes.

#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <thead> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> </thead> <tbody> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </tbody> </table> (BMJ Presentation at 43.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
Adm of influenza vaccine	Wed Jul 21 2021	✓ YES																														
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SABA (Salbutamol)	Wed Feb 17 2021	✓ YES																														
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Streptococcus vaccination		✗ NO																														

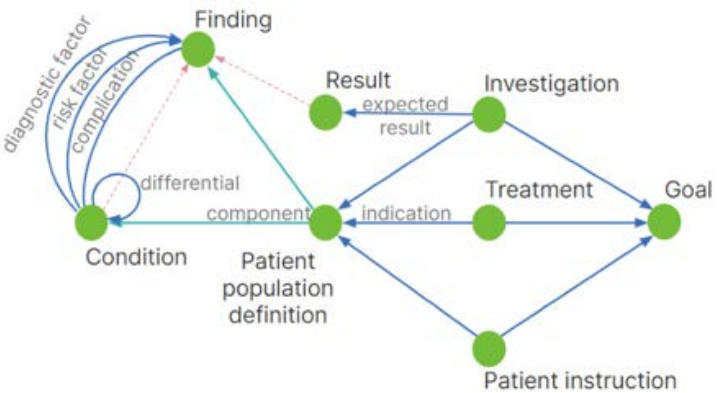
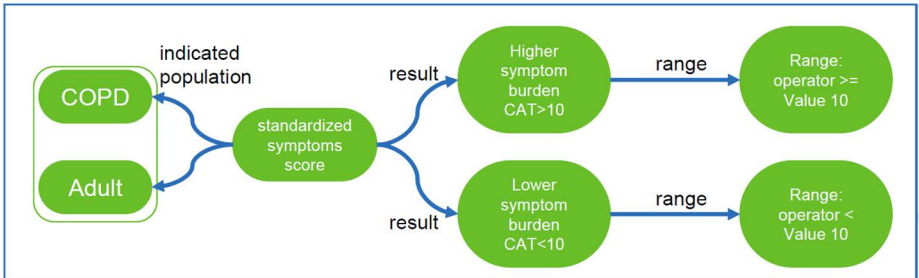
#	'882 Patent Claim	Accused Product
26a	26. A computer system as recited in claim 21, wherein the instructions, when executed, further cause the one or more processors to: produce said plurality of diagnostic factors using natural language processing (NLP); and	On information and belief, BMJ Clinical Intelligence produce said plurality of diagnostic factors using natural language processing (NLP). As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. Evidence shows that BMJ uses extensive natural language processing (NLP) techniques to process text. For example, BMJ hires editors that use common NLP tools to process text. In a job posting dated July 1, 2024, BMJ described the responsibilities included “Formatting text using xml editing packages (currently eXtyles).”

#	'882 Patent Claim	Accused Product
		Responsibilities • Close editing of detailed scientific text to house style, checking text and data for accuracy, restructuring, and rewriting as necessary • Formatting text using xml editing packages (currently eXtyles) • Handling data-heavy illustrations and tables • Liaising with academic authors (BMJ Website: Job Overview.) BMJ's editors use NLP tools (e.g., eXtyles, Kriya) to process narrative text from medical evidence sources, and BMJ's Knowledge Graph Architecture page shows over "11700+" diagnostic factors stored as individual nodes and linked to medical condition nodes (e.g., the "asthma" condition node linked to the "wheezing" finding node).
26b	initialize said natural language processing with said diagnostic entries of said graph database.	BMJ Clinical Intelligence initializes said natural language processing with said diagnostic entries of said graph database. The BMJ White Paper explains that language models (e.g. NLP) can be "guided by structured knowledge coming from the knowledge graph" which is consistent with initializing an NLP using the information including diagnostic entries in the graph database. (BMJ White Paper at 11.) New research is looking at how large language models and knowledge graphs can complement one another. And the research is showing that they can do so in a variety of interesting ways. For example, the learning from a large language model might be guided by structured knowledge coming from the knowledge graph to make the resulting large language model far more robust and allow access to newer or updated information held in the knowledge graph. (BMJ White Paper at 11.)

#	'882 Patent Claim	Accused Product
27a	27. A computer system as recited in claim 21 wherein a demographics	In BMJ Clinical Intelligence, a demographics entry of said graph database located between one of said matched diagnostic factor entries and its corresponding linked medical condition includes

#	'882 Patent Claim	Accused Product
	entry of said graph database located between one of said matched diagnostic factor entries and its corresponding linked medical condition includes demographics of people who exhibit said matched diagnostic factor in the context of said linked medical condition, and	demographics of people who exhibit said matched diagnostic factor in the context of said linked medical condition. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. BMJ's case study with Sayvant describes demographic inputs (e.g., patient age, smoking history, family history) used together with a specific finding (e.g., chest pain) in the context of a specific linked medical condition (e.g., Acute Coronary Syndrome) to calculate the HEART score, and BMJ Group's Comorbidities Manager similarly stores demographic/comorbidity data linked to specific conditions.

#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.) Additionally the Knowledge Graph Architecture diagram in the BMJ Presentation shows a "Patient population definition" node, consistent with demographics, that is located between the diagnostic factor nodes (e.g., "Investigation," "Treatment," and "Patient Instruction") the "Condition" node. (BMJ Presentation at 30.)

#	'882 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
27b	wherein the instructions, when executed, further cause the one or more processors to: only traverse said link from said one matched diagnostic factor entry to its linked medical condition when information of said patient from said EHR matches said demographics in said demographics entry.	BMJ Clinical Intelligence only traverses said link from said one matched diagnostic factor entry to its linked medical condition when information of said patient from said EHR matches said demographics in said demographics entry. The example given in the BMJ Presentation shows the traversal of the knowledge graph occurring when there is a match on the demographic factors input for the patient with certain diagnostic factor entries. In the example, the patient cohort is defined by “Age range: 65+ years old” and “Demographic features: Ethnicity: Asian, Sex: Male,” and only the patients meeting those criteria are carried forward into the graph driven analysis. (BMJ Presentation at 37.)  (BMJ Presentation at 37.)

#	'882 Patent Claim	Accused Product
		Additionally, BMJ's Clinical Intelligence website states that "[d]omain and condition specific filters can be applied" to the Clinical Intelligence output. Filtering the output by condition will cause the system to only traverse the links in the knowledge graph that are applicable for that condition. <i>Supporting Prior Authorization</i>, available at https://clinicalintelligence.bmj.com/prior-authorization/ (last visited September 2, 2026) ("BMJ Website: Supporting Prior Authorization").  BMJ clinical intelligence takes away the burden and cost of creating and maintaining guideline-based recommendations from payors and healthcare platforms by enabling significant efficiencies. Furthermore, because of its structured format, it facilitates the creation and maintenance of executable content at scale. Domain and condition specific filters can be applied for prior authorization determinations and value-based care. This, in turn, can lead to significant efficiencies and cost savings, as well as ensuring clinical guidelines and prior authorization determinations are aligned. (BMJ Website: Supporting Prior Authorization.)

#	'882 Patent Claim	Accused Product
28	28. A computer system as recited in claim 21 wherein said display is for the purpose of patient diagnosis, for an administrative medical purpose, or for a medical preauthorization.	In BMJ Clinical Intelligence, said display is for the purpose of patient diagnosis, for an administrative medical purpose, or for a medical preauthorization. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. BMJ lists use cases for its knowledge graph in the Presentation. The list of use cases includes helping with "diagnostic error and diagnostic delay," "intelligent chart summarization", and "supporting healthcare professionals in prior auth[orization]." (BMJ Presentation at 21.) Helping to avoid and detect diagnostic errors is an example of displaying information from the BMJ knowledge graph for the purpose of patient diagnosis. Using the BMJ knowledge graph to summarize patient charts is an example of displaying the output of the Clinical Intelligence system for administrative purposes. Displaying the outputs for supporting prior authorization is an example of using the BMJ Clinical intelligence for the purpose of a medical preauthorization. BMJ's White Paper additionally explains that the knowledge graph "can be used to help accelerate the differential diagnosis reasoning process to augment the clinical reasoning of the physician and so

#	'882 Patent Claim	Accused Product
		avoid error or delay,” which is consistent with displaying output to a physician for the purpose of patient diagnosis. (BMJ White Paper at 8.) The BMJ website page for “Supporting Prior Authorization” also shows that BMJ Clinical Intelligence is used for preauthorization purposes. (BMJ Website: Supporting Prior Authorization.) Supporting prior authorization  BMJ clinical intelligence takes away the burden and cost of creating and maintaining guideline-based recommendations from payors and healthcare platforms by enabling significant efficiencies. Furthermore, because of its structured format, it facilitates the creation and maintenance of executable content at scale. Domain and condition specific filters can be applied for prior authorization determinations and value-based care. This, in turn, can lead to significant efficiencies and cost savings, as well as ensuring clinical guidelines and prior authorization determinations are aligned. (BMJ Website: Supporting Prior Authorization.)

#	'882 Patent Claim	Accused Product
29	29. A computer system as recited in claim 21 wherein said graph database includes more than twenty thousand entries.	The graph database of BMJ Clinical Intelligence includes more than twenty thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. BMJ’s “Knowledge Graph Architecture” slide reports node counts by category: 905 disease, 7,555 risk factor, 11,705 diagnostic factor, 9,339 investigation, 11,330 differential, 9,062 treatment action, and 5,695 complication. (BMJ Presentation at 32.)

#	'882 Patent Claim	Accused Product
		The seven listed categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand entries. Furthermore, another version of the figure shown in the BMJ website makes clear that the listed entry numbers are floors, not totals, by including plus symbols after the node counts in the various categories. (BMJ Website: Knowledge Graph Architecture.) Knowledge Graph Architecture (BMJ Presentation at 32.)

#	'882 Patent Claim	Accused Product
		(BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
30	30. A computer system as recited in claim 21 wherein said graph database includes more than one hundred thousand entries.	On information and belief, the graph database of BMJ Clinical Intelligence includes more than one hundred thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. On its Clinical Intelligence website, BMJ shows an example of its knowledge graph architecture. BMJ indicates that the “[n]umbers indicate the current approximate number of relationships in each area” and it will “continue to expand coverage.” Aggregating the approximate numbers and not including BMJ’s continued expended coverage, the total number of relationships described in BMJ’s knowledge graph has exceeded 100,000.

#	'882 Patent Claim	Accused Product
		Knowledge graph architecture A clinical perspective on the rich scope of relationships covered in the graph both in terms of breadth and depth. BMJ Clinical Intelligence knowledge graph covers the patient management pathway from prevention through diagnosis to potential complications. Numbers indicate the current approximate number of relationships in each area. We continue to expand coverage. The diagram illustrates the structure of the BMJ Clinical Intelligence knowledge graph. It is organized into a hierarchy of clinical areas, each with a corresponding number of relationships. The areas include: Diagnosis/Screening (1,000): Sub-categories include Key (100), Strong (100), and Other (100). Risk factors (1,000): Sub-categories include Not to consider (100) and Other to consider (100). Investigations (1,000): Sub-categories include Not to consider (100) and Other to consider (100). Referrals (1,000): Sub-categories include Not to consider (100) and Other to consider (100). Clinical/Screening (1,000): Sub-categories include Not to consider (100) and Other to consider (100). Treatment (1,000): Sub-categories include In-Patient (100), Outpatient (100), and Consider (100). Smoking (1,000): Sub-categories include Primary (100) and Secondary (100). Prevention (1,000): Sub-categories include Short term (100), Long term (100), and Variable (100). Complications (1,000): Sub-categories include Short term (100), Long term (100), and Variable (100). Prognosis (1,000): Sub-categories include Short term (100), Long term (100), and Variable (100). (BMJ Website: Knowledge Graph Architecture.)

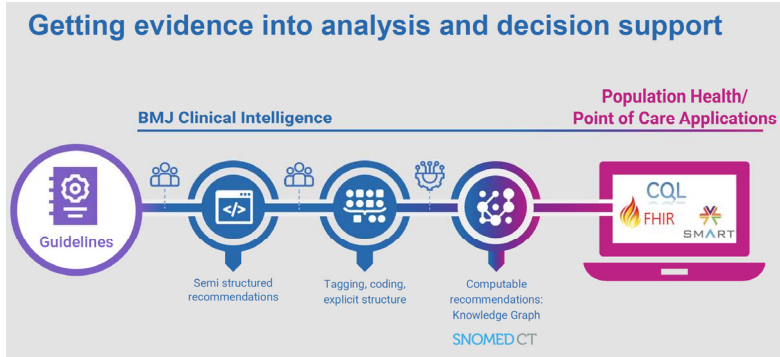
#	'882 Patent Claim	Accused Product
31	31. A computer system as recited in claim 21 wherein said healthcare determination is a recommendation, an evaluation, a result, or a conclusion.	In BMJ Clinical Intelligence, said healthcare determination is a recommendation, an evaluation, a result, or a conclusion. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 21. For example, BMJ's patient centred cycle slide shows "Recommendation" as an output of the knowledge graph, which indicates that one of the possible healthcare determinations in the BMJ Clinical Intelligence system is a recommendation. (BMJ Presentation at 45.)

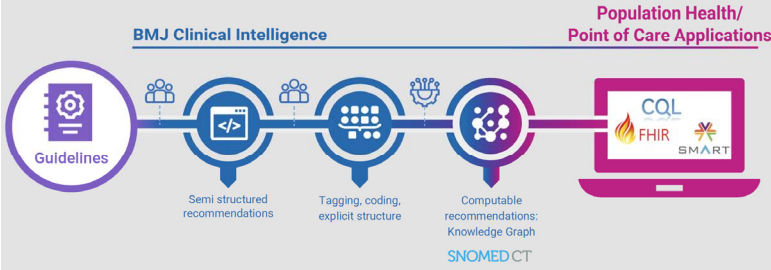
#	'882 Patent Claim	Accused Product
		Sustainable patient centred cycle (BMJ Presentation at 45.) Examples in the BMJ presentation also show that the healthcare determinations output by the BMJ Clinical Intelligence system can include results or conclusions. For example, the presentation shows an example in which BMJ reports results/conclusions about whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.)

#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) The BMJ knowledge graph can also “identify deviations in patient care, suggest interventions, and facilitate early diagnosis.” (BMJ White Paper at 3.) Additionally BMJ clinical intelligence can “recommend evidence-based interventions for both cohorts and individuals.” (BMJ Website: Population Health.) Recommending interventions is consistent with outputting a recommendation as claimed. BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis. In population health, the graph enables comprehensive monitoring, analysis, and early intervention, ensuring efficient resource utilization. (BMJ White Paper at 3.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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Streptococcus vaccination		✗ NO																														

#	'882 Patent Claim	Accused Product
		It can be applied to a whole population or used to stratify cohorts with a given condition such as diabetes. BMJ clinical intelligence can further stratify patients – identifying those who are not proceeding as expected in their care journey. Where there are care gaps or unexpected trends, BMJ clinical intelligence can recommend evidence-based interventions for both cohorts and individuals, as it covers entire pathways of care. This can help get cohorts of patients back on the right track. (BMJ Website: Population Health.)

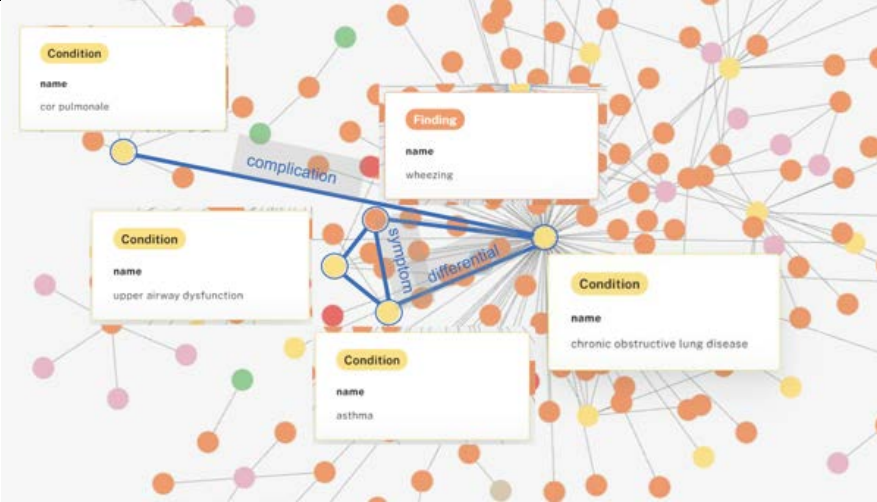
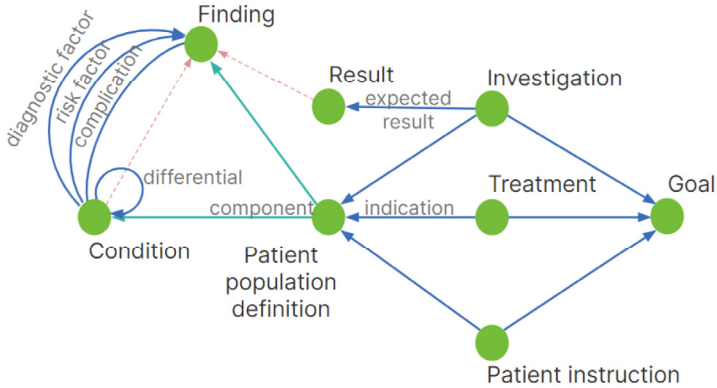
#	'882 Patent Claim	Accused Product
32pre	32. A computer system for determining next-best actions for a medical condition, said computer system comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, for determining next-best actions for a medical condition. BMJ's Presentation states that use cases of BMJ Clinical Intelligence include "directing care" and "support[ing] next best clinical action." Use cases - where and when we can help Where knowledge graphs help Directing care where it is most needed - patient risk stratification • Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization • Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring • Support next best clinical action to improve outcomes • Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics • Pivoting to value based care - optimise care for a population • Support allocation of care resources to most in need of care At the point of care for individuals • Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth • Stratify populations into positives, greys and negatives for clinical review. AI deployment • Evidence derived data for training, testing and monitoring AI models • Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) BMJ's website also indicates that the BMJ system determines "next best action at the point of care." point of care page is headed "Next best action at the point of care," and states that Clinical Intelligence provides "the evidence-based 'next best action'" and thereby "reduces unwarranted clinical variation." <i>Next Best Action at the Point of Care</i>, available at

#	'882 Patent Claim	Accused Product
		https://clinicalintelligence.bmj.com/point-of-care/ (last visited September 2, 2026) (“BMJ Website: Next Best Action at the Point of Care”).
32a	one or more processors; and	BMJ Clinical Intelligence comprises one or more processors. Based on the figure below from BMJ’s Presentation, CI is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate CI.  (BMJ Presentation at 20.)
32b	memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to:	BMJ Clinical Intelligence comprises memory that stores instructions, wherein the instructions, when executed by the one or more processors, cause the one or more processors to perform the claimed steps that follow. Based on the figure below from BMJ’s Presentation, CI is clearly a computer product. Hence, BMJ uses “processors” and “memory that stores instructions” to build and operate CI.

#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.)
32c	for each medical condition of a patient having a probability greater than a threshold of being present in said patient, perform the following identify all known diagnostic factor entries in a graph database that each represent a diagnostic factor known to be present or absent in said patient, each known diagnostic factor entry being linked to a medical condition entry in said graph database representing said each medical condition but not including information specific to said each medical condition;	On information and belief, in BMJ Clinical Intelligence, for each medical condition of a patient having a probability greater than a threshold of being present in said patient, perform the following identify all known diagnostic factor entries in a graph database that each represent a diagnostic factor known to be present or absent in said patient, each known diagnostic factor entry being linked to a medical condition entry in said graph database representing said each medical condition but not including information specific to said each medical condition. BMJ states that “BMJ Clinical Intelligence analyses the patient record and shows when concepts match.” For example the BMJ Presentation at slide 43 shows a column that indicates with a “yes” or a “no” whether certain diagnostic factors match the patient record. (BMJ Presentation at 43.) This is consistent with identifying known diagnostic factor entries that represent diagnostic factors known to be present or absent in a patient.

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		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) For example, BMJ illustrates matching diagnostic factors to “Finding” nodes which are entries in the graph database. In the example provided in the BMJ Presentation, the clinician first selects "Clinical area: COPD" as the basis for the query, matching a portion of the query to the Condition node for COPD. (BMJ Presentation at 35.) The rest of the workflow is built on that match. The system identifies the patients whose records match COPD, reporting that 12 of 75 patients have COPD or spirometry listed in their record. (BMJ Presentation at 40.) Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention. 1 Choose a clinical area Dr Smith chooses an area of clinical interest Clinical area: COPD (BMJ Presentation at 35.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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		The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total patients Matching Quality Metric terms Clinical description COPD12 Spirometry9 The logic is used to highlight the patients that have COPD but not spirometry <table><thead><tr><th>Patient ID</th><th>Age</th><th>Sex</th><th>COPD?</th><th>Spirometry?</th><th>Matched to Quality Metric?</th></tr></thead><tbody><tr><td>Liam Smith</td><td>44</td><td>M</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Mason Anderson</td><td>23</td><td>M</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Scarlett Garcia</td><td>42</td><td>F</td><td>Y</td><td>N</td><td>✗ NO</td></tr><tr><td>Aiden Jones</td><td>55</td><td>M</td><td>Y</td><td>Y</td><td>✓ YES</td></tr></tbody></table> (BMJ Presentation at 40.) BMJ’s knowledge graph also supports matching to finding nodes. The graph view shows a “Finding” node for wheezing matched to the patient factors in the input query and linked to a Condition node for asthma by a “symptom” edge. (BMJ Presentation at 31.)	Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?	Liam Smith	44	M	Y	N	✗ NO	Mason Anderson	23	M	Y	N	✗ NO	Scarlett Garcia	42	F	Y	N	✗ NO	Aiden Jones	55	M	Y	Y	✓ YES
Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?																											
Liam Smith	44	M	Y	N	✗ NO																											
Mason Anderson	23	M	Y	N	✗ NO																											
Scarlett Garcia	42	F	Y	N	✗ NO																											
Aiden Jones	55	M	Y	Y	✓ YES																											

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) BMJ's knowledge graph architecture diagram shows the "Investigation" node connected to the "Condition" node indirectly, through an intervening "Patient population definition" node, thus keeping the diagnostic factor investigation node separate from specific information about the medical condition details. (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 30.)

#	'882 Patent Claim	Accused Product
32d	identify all unknown diagnostic factor entries in said graph database that each represent an unknown diagnostic factor not known to be present or absent in said patient, each unknown diagnostic factor entry being linked to said medical condition entry,	BMJ Clinical Intelligence identifies all unknown diagnostic factor entries in said graph database that each represent an unknown diagnostic factor not known to be present or absent in said patient, each unknown diagnostic factor entry being linked to said medical condition entry. BMJ's case study with Sayvant shows the system recommending "further blood tests and a specific imaging protocol" (e.g., "[s]erum lactate" and "CT [a]ngiography") to test for diagnostic factors not yet known to be present or absent in the patient, each of which is linked to the flagged medical condition (e.g., Acute Mesenteric Ischemia) in BMJ's knowledge graph.

#	'882 Patent Claim	Accused Product
		The BMJ clinical intelligence knowledge graph insight generation The BMJ clinical intelligence knowledge graph, containing millions of interconnected data points on diseases, symptoms, treatments, drug interactions, and genetic markers, processed the input. The resource provided the following initial insights: • Differential diagnosis generation: Based on the high-risk combination of atrial fibrillation and the specific clinical presentation of "pain out of proportion to physical exam" (severe subjective pain with a soft abdomen), the system prioritized a critical, time-sensitive diagnosis. While common causes like Gastritis or Diverticulitis were considered, the system flagged Acute Mesenteric Ischemia as a "must-not-miss" differential that required immediate exclusion. • Drug-disease interaction analysis: Sayvant cross-referenced the patient's current medications (Metoprolol) against the clinical presentation. It flagged that the beta-blocker (Metoprolol) could potentially mask the expected tachycardic response to severe pain or sepsis, falsely reassuring the clinician about the patient's hemodynamic stability. • Recommended diagnostic path: The system prioritized a targeted vascular investigation rather than a standard abdominal workup. It recommended further blood tests and a specific imaging protocol to rule out vascular occlusion: ◦ Serum lactate (to assess for tissue ischemia) ◦ Imaging: CT Angiography (CTA) of the Abdomen/Pelvis (specifically requesting arterial phase to evaluate the superior mesenteric artery). Outcome and treatment Following the Sayvant and BMJ clinical intelligence insights, the treating physician ordered the specific CTA protocol rather than a standard CT abdomen. Key diagnostic findings: • Serum lactate: Elevated (3.2 mmol/L), indicating tissue hypoperfusion. • CT angiography: Revealed an acute embolic occlusion of the proximal Superior Mesenteric Artery (SMA), a finding strongly correlating with the system's flagged association between Atrial Fibrillation and sudden abdominal pain. (BMJ Case Study at 6.) The Presentation also states that the BMJ Clinical Intelligence "highlights areas where a match is expected based on guidelines, but does not appear in the record," which indicates that the BMJ

#	'882 Patent Claim	Accused Product
		system identifies factor entries linked to a medical condition but not in the current patient record. (BMJ Presentation at 43.) BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record (BMJ Presentation at 43.)
32e	wherein said known and unknown diagnostic factor entries and said medical condition entry originate in at least one medical evidence journal,	In BMJ Clinical Intelligence, said known and unknown diagnostic factor entries and said medical condition entry originate in at least one medical evidence journal.  BMJ Journals https://journals.bmj.com : BMJ Journals: Home Our peer reviewed journals include high impact, selective titles that publish innovative research, comprehensive reviews, educational content and case studies. (Website: BMJ Journals.) From the title of BMJ Journals website, BMJ operates a number of journals. The three medical publication examples are published by BMJ Open. It is an “online, open access journal,” which is one of the examples of a published journal.

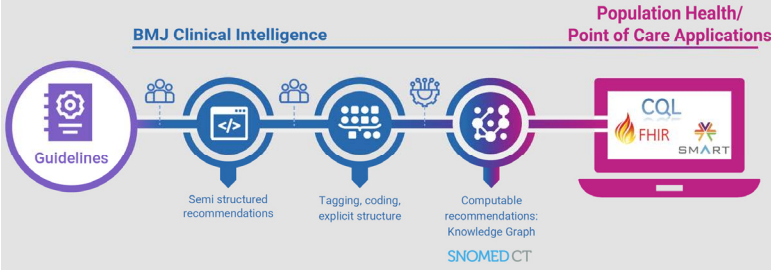
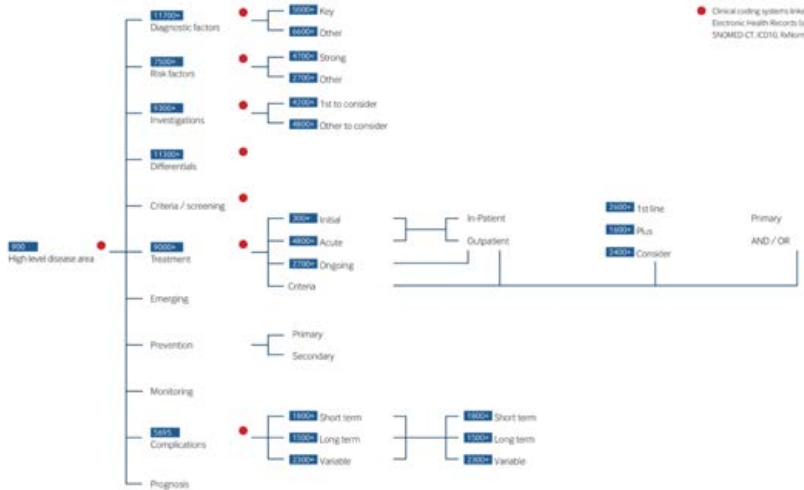
#	'882 Patent Claim	Accused Product
		  BMJ Open is an online, open access journal, dedicated to publishing medical research from all disciplines and therapeutic areas. (Website: BMJ Open.)
32f	wherein said at least one medical evidence journal provides different taxonomies that arrange one or more of said known and unknown diagnostic factors and/or one or more of said medical condition entries in different hierarchies,	In BMJ Clinical Intelligence, the said at least one medical evidence journal provides different taxonomies that arrange one or more of said diagnostic factors entries and/or one or more of said medical condition entries in different hierarchies Below are two examples of medical evidence sources that are used by BMJ which have different taxonomies that arrange “wheezing” in different hierarchies. While “wheezing” is used as an example, BMJ’s Clinical Intelligence uses many different diagnostic factors and medical conditions that will equally meet this claim element. The first example of a medical evidence source is Publication 1. The first medical evidence source puts “wheezing-ill” in a first taxonomy that is based on the hierarchy of “classification of consultation.” See Figure 1 at the bottom of the screen capture.

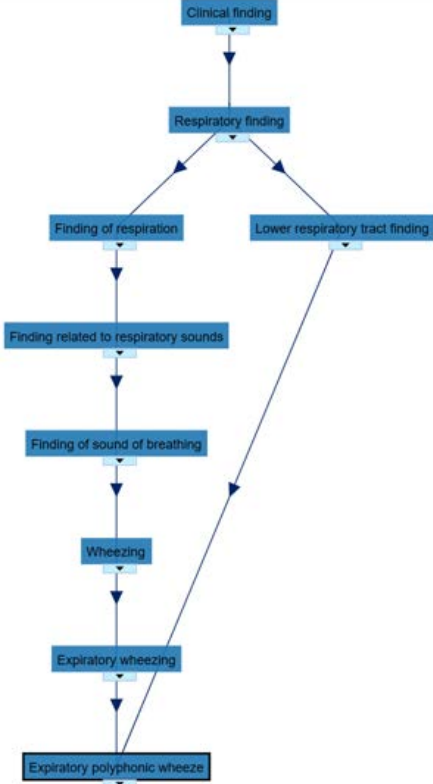
#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 3 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] B --> D[URT] B --> E[LRT] C --> F[Wheeze-ill] C --> G[Throat infections] C --> H[Otitis media] C --> I[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J, et al. BMJ Open 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 3

(Publication 1 at 3.)

The first medical evidence source also puts “wheeze” and wheeze-related conditions into another taxonomy, which is a Table 1 that is based on the hierarchy of respiratory classification categories.

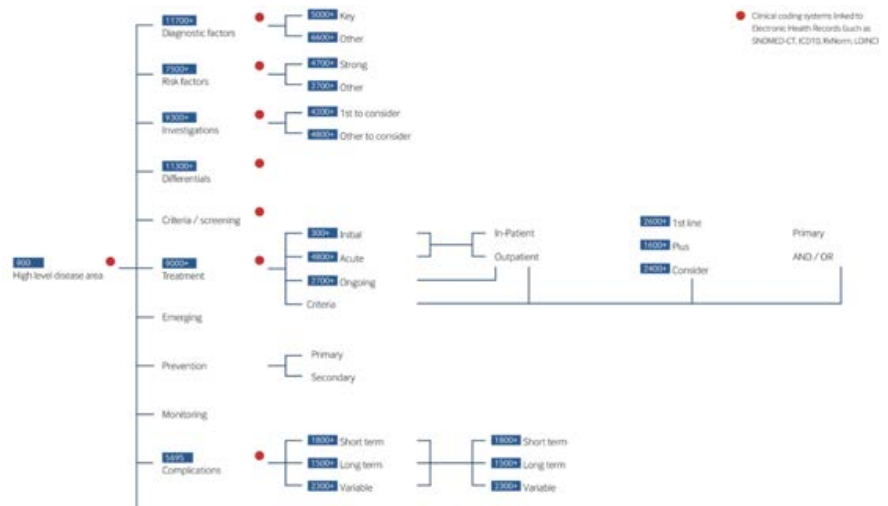
#	'882 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection </td></tr><tr><td>Lower respiratory tract infections</td><td> ▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough </td></tr><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr><tr><td>Throat infections</td><td> ▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis </td></tr><tr><td>Otitis media</td><td> ▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear </td></tr><tr><td>Other respiratory</td><td> ▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient </td></tr></table> (Publication 1 at 4.) The second example of a medical evidence source is SNOMED CT, which is used by BMJ Clinical Intelligence as shown in the graph below.	Classification category	Respiratory conditions included within category*	Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection	Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma	Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis	Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear	Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient
Classification category	Respiratory conditions included within category*															
Upper respiratory tract infections	▶ Cold ▶ Croup ▶ Influenza-like illness ▶ Viral influenza in the absence of associated signs or symptoms indicative of lower respiratory tract infection ▶ Scarlet fever ▶ Tracheitis ▶ Cough in the absence of associated signs or symptoms indicative of asthma or lower respiratory tract infection															
Lower respiratory tract infections	▶ Bronchitis ▶ Bronchopneumonia ▶ Chest infection ▶ Chronic lung disease ▶ Cystic fibrosis ▶ Lung abscess/bronchiectasis ▶ Pertussis ▶ Pleurisy ▶ Pneumonia ▶ Tuberculosis ▶ Whooping cough															
Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma															
Throat infections	▶ Infectious mononucleosis ▶ Laryngitis ▶ Pharyngitis ▶ Pharyngotonsillitis ▶ Tonsillitis															
Otitis media	▶ Acute otitis media ▶ Chronic suppurative otitis media ▶ Otitis media with effusion ▶ Glue ear															
Other respiratory	▶ Conditions with very low prevalence) for which there are not individual categories – Allergic rhinitis – Hay fever – Rhinitis – Sinusitis ▶ Consultations in which respiratory symptoms are present but there is insufficient															

#	'882 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) SNOMED-CT is also explicitly mentioned in BMJ’s Clinical Intelligence website regarding the knowledge graph architecture as being linked to clinical coding systems.  (BMJ Website: Knowledge Graph Architecture.) The second medical evidence source, SNOMED CT, puts “wheezing” in another taxonomy that is based on the hierarchy of respiratory sounds. The link below reveals a screen capture of the “Visualization” tab that illustrates this hierarchy.

#	'882 Patent Claim	Accused Product
		 <pre> graph TD A[Clinical finding] --> B[Respiratory finding] B --> C[Finding of respiration] B --> D[Lower respiratory tract finding] C --> E[Finding related to respiratory sounds] E --> F[Finding of sound of breathing] F --> G[Wheezing] G --> H[Expiratory wheezing] H --> I[Expiratory polyphonic wheeze] D --> I </pre> (Website: Bioportal). In the two medical evidence sources above, wheezing is arranged in different hierarchies based on different concepts and is associated with different other diagnostic factors and/or medical conditions such as “throat infection” in the first medical evidence source (Publication 1), and “expiratory polyphonic wheeze” in the second medical evidence source (SNOMED).
32g	and wherein a first diagnostic factor entry is discussed in part of said at least one medical evidence journal as being indicative of a first medical condition entry;	In BMJ Clinical Intelligence, a first diagnostic factor is discussed in part of said medical evidence journal as being indicative of a first medical condition entry. In Publication 1, the authors discussed that “wheeze” is indicative of “Asthma,” which is a medical condition.

#	'882 Patent Claim	Accused Product
		Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma (Publication 1 at 4.) While in this claim chart “wheeze” is used as an example of “first diagnostic factor” recited in the claim and “asthma” is used as “first medical condition” recited in the claim, BMJ’s Clinical Intelligence uses many more examples of diagnostic factors and medical conditions that will meet the claim element.
32h	establish one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said known and unknown diagnostic factor entries that are linked to said medical condition entry in said graph database in order to generate a healthcare determination;	BMJ establishes one or more application programming interfaces (APIs) for said graph database, said one or more APIs allowing an application to integrate with said graph database to access said diagnostic factor entries and said medical condition entries in said graph database in order to generate a healthcare determination As shown in the Presentation, BMJ has established one or more APIs (e.g., CQL, FHIR, and SMART) for its graph database that allow software applications to integrate with the graph database to access its nodes and generate a healthcare determination. Getting evidence into analysis and decision support (BMJ Presentation at 20.) BMJ indicates that the use cases of Clinical Intelligence include “directing care,” and “support[ing] next best clinical action.” (BMJ Presentation at 21.) This shows that the APIs enables software to generate “a healthcare determination,” as recited in the claim.

#	'882 Patent Claim	Accused Product
		Use cases - where and when we can help  Where knowledge graphs help Directing care where it is most needed - patient risk stratification - Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization - Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring - Support next best clinical action to improve outcomes - Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics - Pivoting to value based care - <i>optimise care for a population</i> - Support allocation of care resources to most in need of care At the point of care for individuals - Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth - Stratify populations into positives, greys and negatives for clinical review. AI deployment - Evidence derived data for training, testing and monitoring AI models - Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) How might BMJ Clinical Intelligence be used? BMJ Clinical Intelligence can be used in multiple contexts. It can be used in clinical decision support at the point of care via web services or as a SMART on FHIR application for individual patients. It can also be used as a knowledge resource in population health to address the care of cohorts of patients. At the point of care, the graph can be queried to look for deviations from a patient's expected course – for a care gap or untoward trend. And in turn, once it detects a deviation, it can suggest an early intervention to rectify the patient's care. (BMJ White Paper at 8.)
32i	identify a rank of each unknown diagnostic factor entry that indicates a likelihood that said represented unknown diagnostic factor indicates said each	On information and belief, BMJ Clinical Intelligence identifies a rank of each unknown diagnostic factor entry that indicates a likelihood that said represented unknown diagnostic factor indicates said each medical condition, said rank being stored in a database entry link between said unknown diagnostic factor entry and said medical condition entry. BMJ's Knowledge Graph Architecture page indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to

#	'882 Patent Claim	Accused Product
	medical condition, said rank being stored in a database entry link between said unknown diagnostic factor entry and said medical condition entry; and	consider” investigations from “Other to consider” investigations. These categories reflect a received weighting of a likelihood that a given clinical concept (diagnostic factor) is indicative of the associated medical condition and these weighted categories are retrieved by traversing the links between the diagnostic factor nodes and the condition nodes. The page shows the intermediate ranking/strength categories (e.g., “Strong”/“Other” risk factors, “1st to consider”/“Other to consider” investigations) positioned between medical condition nodes and diagnostic factor nodes.  (BMJ Website: Knowledge Graph Architecture.)
32j	display said unknown diagnostic factors represented by said unknown diagnostic factor entries in association with said each medical condition in order of said rank of said each unknown diagnostic factor as said healthcare determination.	BMJ Clinical Intelligence displays said unknown diagnostic factors represented by said unknown diagnostic factor entries in association with said each medical condition in order of said rank of said each unknown diagnostic factor as said healthcare determination. BMJ’s case study with Sayvant shows the system outputting (i.e., displaying) ranked, prioritized next diagnostic steps (e.g., ordering troponin testing before recommending a D-dimer or CTA Chest) associated with the relevant medical condition, consistent with outputting unknown diagnostic factors in order of rank to produce a healthcare determination (i.e., the next-best action).

#	'882 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

#	'882 Patent Claim	Accused Product
33	33. A computer system as recited in claim 32, wherein the instructions, when executed, further cause the one or more	BMJ Clinical Intelligence identifies said unknown diagnostic factor entries by traversing down through said graph database from said each medical condition entry and disregarding said known diagnostic factor entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32.

#	'882 Patent Claim	Accused Product
	processors to: identify said unknown diagnostic factor entries by traversing down through said graph database from said each medical condition entry and disregarding said known diagnostic factor entries.	For example, BMJ's case study with Sayvant shows the system traversing from a flagged medical condition (e.g., Acute Mesenteric Ischemia) down to diagnostic factors not yet confirmed for that patient (e.g., serum lactate level, CTA findings), while excluding diagnostic factors already known to be present or absent (e.g., the patient's already-known atrial fibrillation and abdominal exam findings).

#	'882 Patent Claim	Accused Product
		The BMJ clinical intelligence knowledge graph insight generation The BMJ clinical intelligence knowledge graph, containing millions of interconnected data points on diseases, symptoms, treatments, drug interactions, and genetic markers, processed the input. The resource provided the following initial insights: • Differential diagnosis generation: Based on the high-risk combination of atrial fibrillation and the specific clinical presentation of "pain out of proportion to physical exam" (severe subjective pain with a soft abdomen), the system prioritized a critical, time-sensitive diagnosis. While common causes like Gastritis or Diverticulitis were considered, the system flagged Acute Mesenteric Ischemia as a "must-not-miss" differential that required immediate exclusion. • Drug-disease interaction analysis: Sayvant cross-referenced the patient's current medications (Metoprolol) against the clinical presentation. It flagged that the beta-blocker (Metoprolol) could potentially mask the expected tachycardic response to severe pain or sepsis, falsely reassuring the clinician about the patient's hemodynamic stability. • Recommended diagnostic path: The system prioritized a targeted vascular investigation rather than a standard abdominal workup. It recommended further blood tests and a specific imaging protocol to rule out vascular occlusion: ◦ Serum lactate (to assess for tissue ischemia) ◦ Imaging: CT Angiography (CTA) of the Abdomen/Pelvis (specifically requesting arterial phase to evaluate the superior mesenteric artery). Outcome and treatment Following the Sayvant and BMJ clinical intelligence insights, the treating physician ordered the specific CTA protocol rather than a standard CT abdomen. Key diagnostic findings: • Serum lactate: Elevated (3.2 mmol/L), indicating tissue hypoperfusion. • CT angiography: Revealed an acute embolic occlusion of the proximal Superior Mesenteric Artery (SMA), a finding strongly correlating with the system's flagged association between Atrial Fibrillation and sudden abdominal pain. (BMJ Case Study at 6.)

#	'882 Patent Claim	Accused Product
34	34. A computer system as recited in claim 32 wherein said rank of said each unknown diagnostic factor entry is located within a factor group entry located between said medical condition entry and said each unknown diagnostic factor entry.	On information and belief, in BMJ Clinical Intelligence said rank of said each unknown diagnostic factor entry is located within a factor group entry located between said medical condition entry and said each unknown diagnostic factor entry. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. The BMJ Presentation shows that the knowledge graph architecture includes groupings of nodes related to diagnostic factors, consistent with a factor group entry. For example, the “diagnostic factor” entry in the below architecture diagram is linked to “key” and “other” entries which indicate ranking of the diagnostic factor because “key” diagnostic factors may be ranked as more related to the condition than “other” diagnostic factors. Knowledge Graph Architecture (BMJ Presentation at 32.)

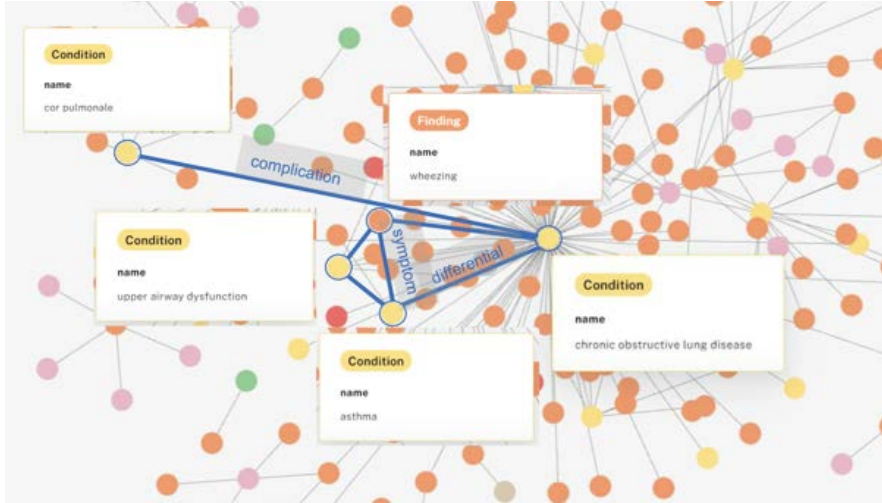
#	'882 Patent Claim	Accused Product
35	35. A computer system as recited in claim 32, wherein the instructions, when executed, further	For each known diagnostic factor, BMJ Clinical Intelligence traverses upward in a medical ontology link found in said identified known diagnostic factor entry in order to infer other known diagnostic factors present in said patient.

#	'882 Patent Claim	Accused Product
	cause the one or more processors to: for each known diagnostic factor, traverse upward in a medical ontology link found in said identified known diagnostic factor entry in order to infer other known diagnostic factors present in said patient.	As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. BMJ's knowledge graph incorporates SNOMED CT ontology links (e.g., the "wheezing" SNOMED CT hierarchy) that allow upward traversal from a specific finding to broader or related ontology concepts, consistent with inferring related diagnostic factors.

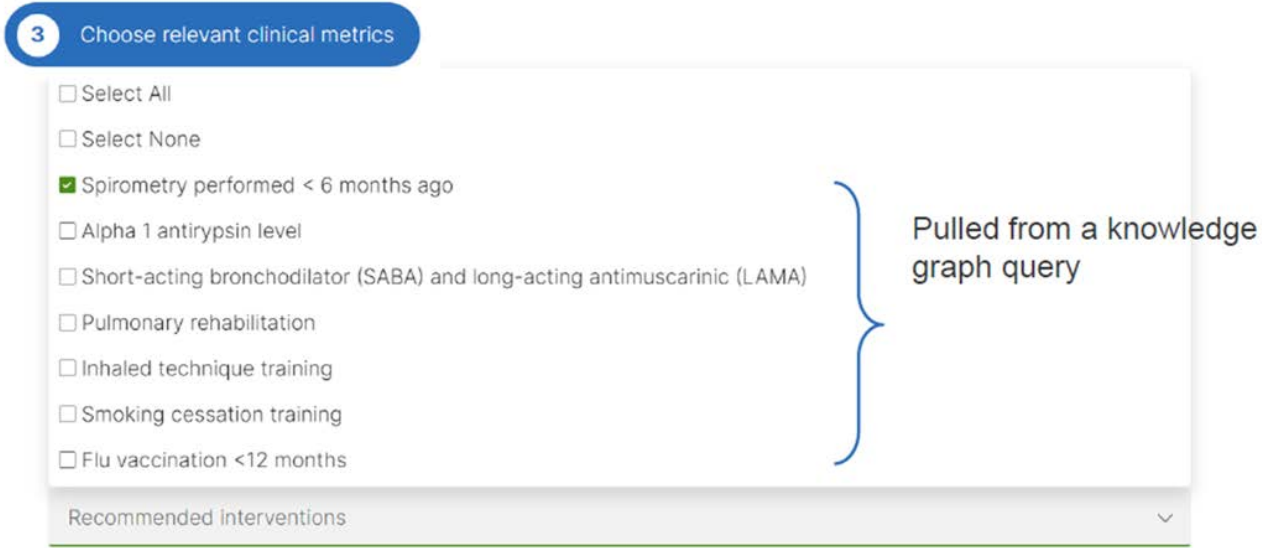
#	'882 Patent Claim	Accused Product
		6 Open Access analysis of the data and development of the methodology. Challenges identified within the exploratory analysis were discussed among the entire research team and consensus was achieved. Creating the respiratory condition categories A hierarchical classification system was developed (figure 1). The first level of the hierarchy divided all consultations into either 'respiratory' or 'not respiratory'. The 'not respiratory' category included consultations for conditions such as injury or gastroenteritis, as well as consultations in which the respiratory system was examined as a screening test, but no signs, symptoms or diagnoses were recorded. These screening consultations were excluded so that the burden of respiratory illness estimate was not inflated by consultations that did not result from a respiratory illness. The second level of the hierarchy subclassified consultations into one or more specific respiratory conditions. When selecting these conditions, consideration was given to the degree to which these could be mapped to conditions of high prevalence (those that are common) and/or conditions responsible for significant morbidity and hospitalisation (those that are important). Initially 14 categories were selected; however, exploratory analysis indicated that the prevalence of some of these conditions was very low (<4%), and insufficient to effectively train an algorithm. Consequently, conditions with low individual prevalence were combined within categories based on anatomical proximity (eg, pharyngitis and tonsillitis). Ultimately, six condition categories were created: (1) upper respiratory tract infections; (2) lower respiratory tract infections; (3) wheeze-related illness; (4) throat infections; (5) otitis media; and (6) other respiratory conditions. The main conditions included within each category are presented in table 1. Methodological decisions Inclusion of both practice nurse and GP consultations was initially planned as these both contribute to the primary care burden, however, during exploratory analysis, it was found that many nursing clinical records were created as a result of telephone calls (including messages left), immunisation visits and general health and development checks. It was not possible to cross reference clinical records with appointment bookings to differentiate between clinical consultations and other non-consultation records because many nurses did not keep appointments in the same manner as did GPs. Consequently, nurse-only clinical records were excluded. If a nurse and GP both consulted the same child on the same day, PROSAIC merged these clinical records so that important information was not omitted (GPs often did not re-record information already captured within the nursing notes). When interpreting the content of individual consultations, the following methodological decisions were made: (1) any directly declared and diagnosed condition by the GP was accepted at face value, even if the clinical experts within the research team disagreed with the GP's impression; (2) when the GP's clinical impression regarding symptoms differed from that of the child's (or their parent's) report, the GP's assessment was accepted at face value; (3) signs and symptoms reported within the consultation were deemed to be part of the current episode unless these were clearly delineated as being historical (ie, 'pneumonia 3 years ago') or absent (ie, 'no wheeze'). Algorithm development and training The Child Respiratory Algorithm ('the Algorithm') was created to classify each consultation, based on the respiratory condition or conditions that were assessed or managed during the consultation, using PROSAIC software. The PROSAIC system was chosen: (1) as it had been successfully used previously to solve similar problems of classifying acute general practice presentations from clinical narrative; and (2) as the research team had expertise with this software; and also, (3) because it had been developed by the local PHO involved in the <pre> graph TD A[Child-GP consultation] --> B[Not respiratory] A --> C[Respiratory] B --> D[URTIs] C --> E[LRTIs] C --> F[Wheeze-ill] C --> G[Throat infections] C --> H[Otitis media] C --> I[Other respiratory] </pre> Figure 1 Hierarchy for classification of consultations, using free text notes, diagnostic Read codes and medication prescription. GP, general practitioner; URTI, upper respiratory tract infection; LRTI, lower respiratory tract infection; Wheeze-ill, wheeze-related illness. MacRae J, et al. <i>BMJ Open</i> 2015;5:e008160. doi:10.1136/bmjopen-2015-008160 3

(Publication 1 at 3.)

#	'882 Patent Claim	Accused Product		
36	36. A computer system as recited in claim 32 wherein each said known and unknown diagnostic factor entry includes at least one synonym of said represented known and unknown diagnostic factor.	On information and belief, in BMJ Clinical Intelligence, said each diagnostic factor entry may include at least one synonym of said diagnostic factor represented by said each diagnostic factor entry. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. BMJ uses SNOMED-CT in its tagging and coding pipeline for the knowledge graph. SNOMED CT concept entries inherently include synonym descriptions as part of their standard data model. For example, the Presentation describes tagging, coding, explicit structure leading to “Computable recommendations: Knowledge Graph” with “SNOMED CT.” (BMJ Presentation at 20.) To the extent BMJ incorporates SNOMED CT concept data into its diagnostic-factor entries, those entries may include at least one SNOMED CT synonym. Getting evidence into analysis and decision support (BMJ Presentation at 20.) Additionally, BMJ’s own materials use both “wheeze” (in source publications) and “wheezing” (in the knowledge graph Finding node), indicating that BMJ’s editorial pipeline handles terminological variants of the same clinical concept. For example, in Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition. <table><tr><td>Wheeze-related illness</td><td> ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma </td></tr></table>	Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma
Wheeze-related illness	▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma			

#	'882 Patent Claim	Accused Product
		In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and showed that “wheezing” is a “symptom” of “asthma.”  (BMJ Presentation at 31.)

#	'882 Patent Claim	Accused Product
37	37. A computer system as recited in claim 32 wherein each said known and unknown diagnostic factor entry includes a temporality attribute, a negation attribute or an experiencer attribute.	In BMJ Clinical Intelligence, each said known and unknown diagnostic factor entry includes a temporality attribute, a negation attribute or an experiencer attribute. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ’s metric list, which it states is “[p]ulled from a knowledge graph query,” includes “Spirometry performed < 6 months ago” and “Flu vaccination <12 months.” (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.

#	'882 Patent Claim	Accused Product
		 (BMJ Presentation at 39.) BMJ also stores negation attributes for diagnostic factor entries. For example, the presentation shows an example in which BMJ reports whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.) “No” values stored in the diagnostic factor entries demonstrate negation attributes.

#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <thead> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> </thead> <tbody> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </tbody> </table> (BMJ Presentation at 43.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
Adm of influenza vaccine	Wed Jul 21 2021	✓ YES																														
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SABA (Salbutamol)	Wed Feb 17 2021	✓ YES																														
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Device education		✗ NO																														
LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO																														
Smoking cessation therapy		✗ NO																														
Streptococcus vaccination		✗ NO																														

#	'882 Patent Claim	Accused Product
38	38. A computer system as recited in claim 32 wherein traversing said graph database from one of said unknown diagnostic factor entries to a first one of said medical conditions produces a first rank for said one of said unknown diagnostic factor entries	In BMJ Clinical Intelligence, traversing said graph database from one of said unknown diagnostic factor entries to a first one of said medical conditions produces a first rank for said one of said unknown diagnostic factor entries in the context of said first medical condition which is different from a second rank produced by traversing from said one of said unknown diagnostic factor entries to a second one of said medical conditions. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. For example, traversing BMJ's graph database from one diagnostic factor to a second medical condition produces a rank different from traversing from that same diagnostic factor to a first medical condition. BMJ's case study with Sayvant illustrates this directly: the same patient finding profile

#	'882 Patent Claim	Accused Product
	in the context of said first medical condition which is different from a second rank produced by traversing from said one of said unknown diagnostic factor entries to a second one of said medical conditions.	(chest pain, non-specific ECG, smoking history) produces one likelihood/rank result in the context of Acute Coronary Syndrome (a “moderate risk” HEART score) and a different rank/priority in the context of the alternative flagged condition, Pulmonary Embolism, for which the system separately “prompts the physician to consider a D-dimer or CTA Chest.” BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant’s clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph’s comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient’s risk using established clinical scores. Based on the patient’s age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the “moderate risk” category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical “can’t miss” alternative. Given the non-specific ECG and the patient’s smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn’t focus solely on the heart. Outcome: Sayvant’s clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)

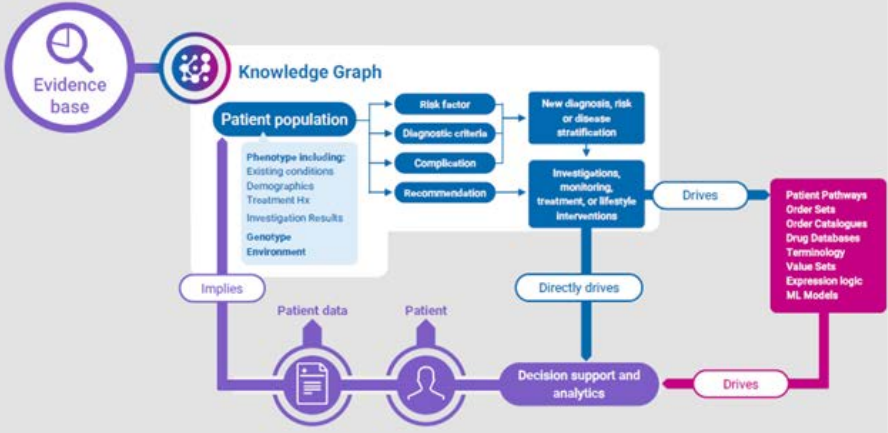
#	'882 Patent Claim	Accused Product
39	39. A computer system as recited in claim 32 wherein said graph database includes more than twenty thousand entries.	The graph database of BMJ Clinical Intelligence includes more than twenty thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. BMJ's "Knowledge Graph Architecture" slide reports node counts by category: 905 disease, 7,555 risk factor, 11,705 diagnostic factor, 9,339 investigation, 11,330 differential, 9,062 treatment action, and 5,695 complication. (BMJ Presentation at 32.) The seven listed categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand entries. Furthermore, another version of the figure shown in the BMJ website makes clear that the listed entry numbers are floors, not totals, by including plus symbols after the node counts in the various categories. (BMJ Website: Knowledge Graph Architecture.) Knowledge Graph Architecture <pre> graph LR Disease[905 Disease] RiskFactor[7555 Risk factor] --> Strong[Strong] RiskFactor --> Other1[Other] ScreeningAction[Screening action] --> Primary1[Primary] PreventionAction[Prevention action] --> Secondary[Secondary] DiagnosticFactor[11705 Diagnostic factor] --> Key[Key] DiagnosticFactor --> Other2[Other] Key --> Common[Common] Key --> Uncommon[Uncommon] Investigation[9339 Investigation] --> Initial[Initial] Investigation --> Subsequent[Subsequent] DiagnosticCriteria[Diagnostic Criteria] Differential[11330 Differential] --> Inpatient[Inpatient] Differential --> Outpatient[Outpatient] Differential --> 1stLine[1st Line] Differential --> Plus[Plus] Differential --> Consider[Consider] TreatmentAction[9062 Treatment action] --> Primary2[Primary] TreatmentAction --> ANDOR[AND/OR] MonitoringAction[Monitoring action] Complication[5695 Complication] --> ShortTerm[Short term] Complication --> HighRisk[High risk] Complication --> LongTerm[Long term] Complication --> MediumRisk[Medium risk] Prognosis[Prognosis] --> Variable[Variable] Prognosis --> LowRisk[Low risk] </pre> (BMJ Presentation at 32.)

#	'882 Patent Claim	Accused Product
		(BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
40	40. A computer system as recited in claim 32 wherein said graph database includes more than one hundred thousand entries.	On information and belief, the graph database of BMJ Clinical Intelligence includes more than one hundred thousand entries. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. On its Clinical Intelligence website, BMJ shows an example of its knowledge graph architecture. BMJ indicates that the “[n]umbers indicate the current approximate number of relationships in each area” and it will “continue to expand coverage.” Aggregating the approximate numbers and not including BMJ’s continued expanded coverage, the total number of relationships described in BMJ’s knowledge graph has exceeded 100,000.

#	'882 Patent Claim	Accused Product
		Knowledge graph architecture A clinical perspective on the rich scope of relationships covered in the graph both in terms of breadth and depth. BMJ Clinical Intelligence knowledge graph covers the patient management pathway from prevention through diagnosis to potential complications. Numbers indicate the current approximate number of relationships in each area. We continue to expand coverage. (BMJ Website: Knowledge Graph Architecture.)

#	'882 Patent Claim	Accused Product
41	41. A computer system as recited in claim 32 wherein said healthcare determination is a recommendation, an evaluation, a result, or a conclusion.	In BMJ Clinical Intelligence, said healthcare determination is a recommendation, an evaluation, a result, or a conclusion. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 32. For example, BMJ's patient centred cycle slide shows "Recommendation" as an output of the knowledge graph, which indicates that one of the possible healthcare determinations in the BMJ Clinical Intelligence system is a recommendation. (BMJ Presentation at 45.)

#	'882 Patent Claim	Accused Product
		Sustainable patient centred cycle  The diagram illustrates a sustainable patient-centered cycle. It begins with an Evidence base (represented by a magnifying glass icon) which feeds into a Knowledge Graph (represented by a network icon). The Knowledge Graph leads to a Patient population box, which lists a Phenotype including: Existing conditions, Demographics, Treatment Hx, Investigation Results, Genotype, and Environment. From the Patient population, arrows point to Risk factor, Diagnostic criteria, Complication, and Recommendation. These lead to New diagnosis, risk or disease stratification and Investigations, monitoring, treatment, or lifestyle interventions. The Investigations... box Drives Patient Pathways, Order Sets, Order Catalogues, Drug Databases, Terminology, Value Sets, Expression logic, ML Models. The Patient population also Implies Patient data (represented by a document icon), which leads to the Patient (represented by a person icon). The Patient leads to Decision support and analytics (represented by a brain icon). The Decision support and analytics Directly drives the Investigations... box and Drives the Patient Pathways... box. (BMJ Presentation at 45.) Examples in the BMJ presentation also show that the healthcare determinations output by the BMJ Clinical Intelligence system can include results or conclusions. For example, the presentation shows an example in which BMJ reports results/conclusions about whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.)

#	'882 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) The BMJ knowledge graph can also “identify deviations in patient care, suggest interventions, and facilitate early diagnosis.” (BMJ White Paper at 3.) Additionally BMJ clinical intelligence can “recommend evidence-based interventions for both cohorts and individuals.” (BMJ Website: Population Health.) Recommending interventions is consistent with outputting a recommendation as claimed. BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis. In population health, the graph enables comprehensive monitoring, analysis, and early intervention, ensuring efficient resource utilization. (BMJ White Paper at 3.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
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		It can be applied to a whole population or used to stratify cohorts with a given condition such as diabetes. BMJ clinical intelligence can further stratify patients – identifying those who are not proceeding as expected in their care journey. Where there are care gaps or unexpected trends, BMJ clinical intelligence can recommend evidence-based interventions for both cohorts and individuals, as it covers entire pathways of care. This can help get cohorts of patients back on the right track. (BMJ Website: Population Health.)