

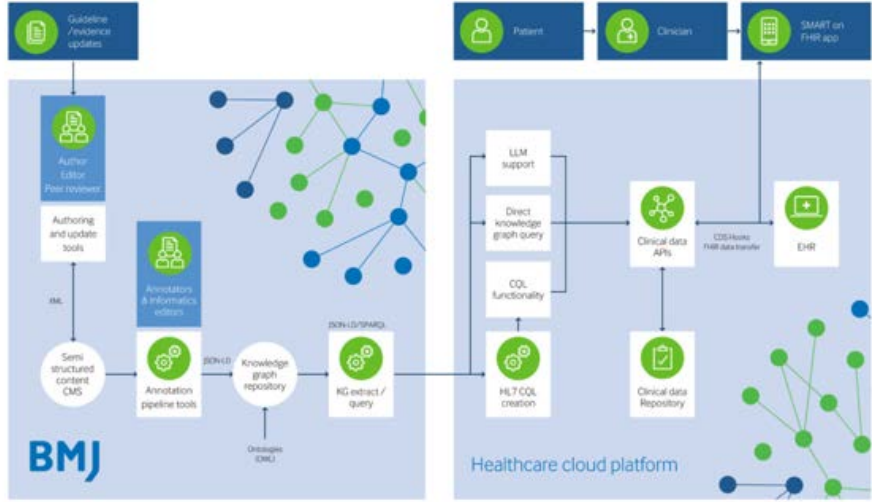
EXHIBIT Q

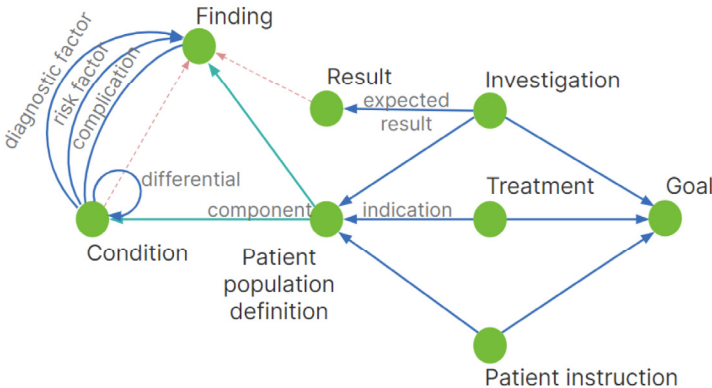
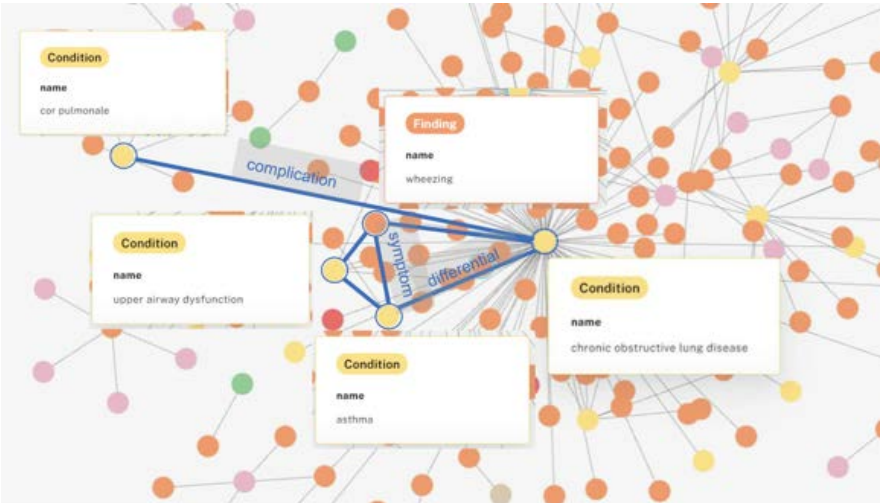
EXHIBIT Q - Claim Chart for U.S. Patent No. 12,518,883

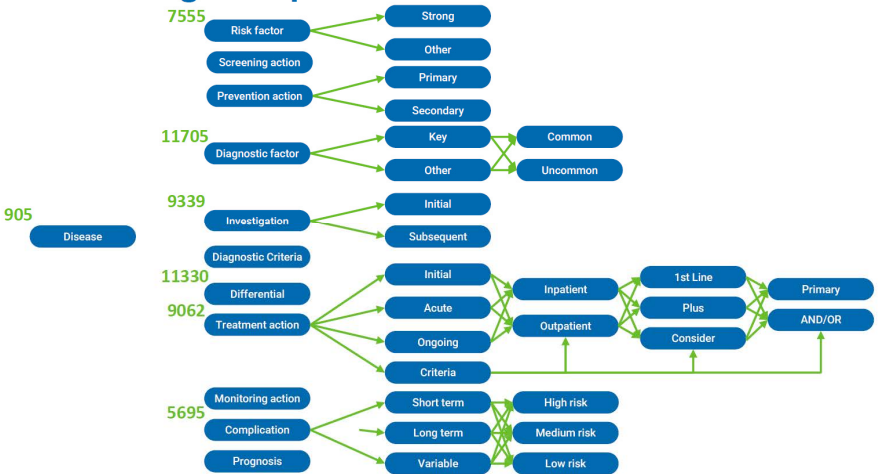
#	'883 Patent Claim	Accused Product
1pre	1. A method of providing reasoning capability to integrated medical evidence from medical evidence sources, said method comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, that perform a method of providing reasoning capability to integrated medical evidence from medical evidence sources. BMJ uses “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 Clinical Intelligence Presentation, BMJ marketed Clinical Intelligence as a tool “delivering computable evidence at scale.” (BMJ Presentation at 1.) This indicates the BMJ has “continuously updated” its “evidence-based content” to generate “integrated medical evidence.” 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.) Delivering computable evidence at scale (BMJ Presentation at 1.) In its White Paper, 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 - BMJ_CI_White-Paper_WEB-1 (“BMJ White Paper”) at 7.) This indicates that BMJ “integrated medical evidence” from various “medical evidence sources” because BMJ operates different medical journals, each of which is a medical evidence source.

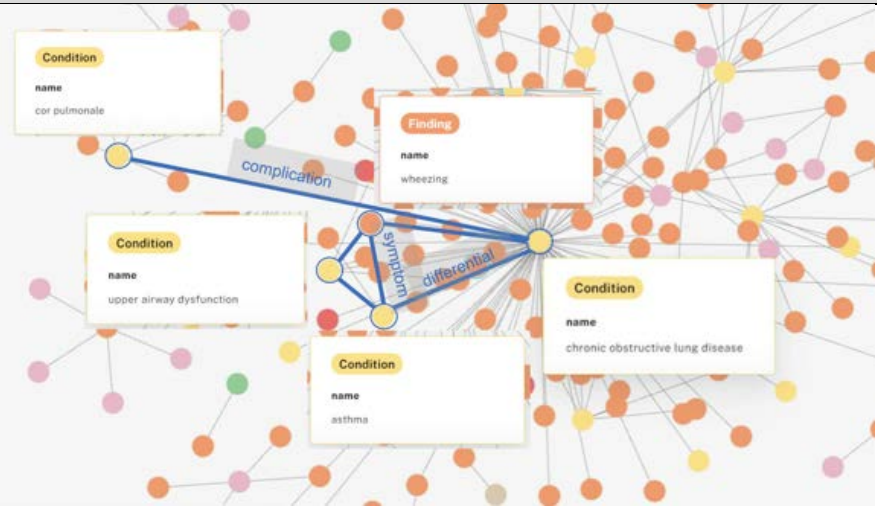
#	'883 Patent Claim	Accused Product
		BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been 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.) BMJ also integrates third-party medical evidence sources such as SNOMED-CT: The diagram illustrates a workflow for getting evidence into analysis and decision support. It starts with 'Guidelines' (represented by a gear icon) which leads to 'Semi structured recommendations' (represented by a code icon). This then leads to 'Tagging, coding, explicit structure' (represented by a network icon). This step is linked to 'Computable recommendations: Knowledge Graph' (represented by a network icon) and 'SNOMED CT' (represented by a network icon). Finally, the workflow leads to 'Population Health/Point of Care Applications' (represented by a laptop icon showing 'CQL', 'FHIR', and 'SMART' logos). (BMJ Presentation at 20.) BMJ’s Clinical Intelligence also provides “reasoning capability,” as recited in the preamble. According to its White Paper, Clinical Intelligence allows clinician end-users to use “a knowledge graph-based augmented clinical reasoning system.” The aim is that the clinician end-user has a delightful experience using a knowledge graph-based augmented clinical reasoning system and that they will be in a continuous learning mode as a result of receiving continuous feedback. (BMJ White Paper at 12.)

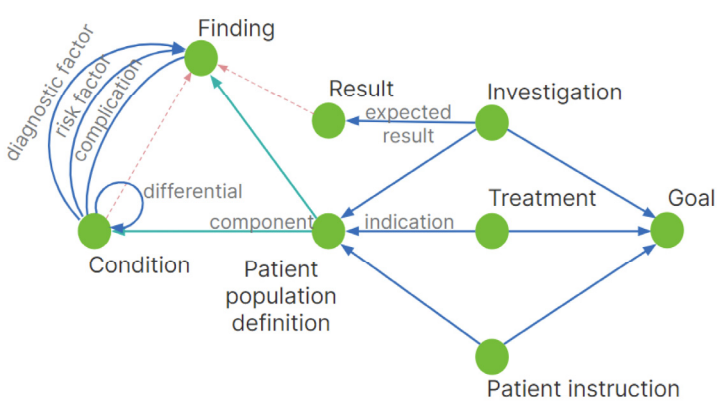
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1a	receiving, via an application programming interface (API), a medical query from a software application for querying said knowledge graph,	BMJ Clinical Intelligence receives, via an application programming interface (API), a medical query from a software application for querying the knowledge graph. The illustration below includes evidence that Clinical Intelligence is intended to be used to communicate with other software applications such as CQL, FHIR, and SMART. (BMJ Presentation at 20.) Hence, Clinical Intelligence includes one or more APIs for receiving a medical query from a software application to query CI's knowledge graph. The diagram illustrates the process of getting evidence into analysis and decision support. It starts with 'Guidelines' (represented by a gear icon) leading to 'Semi structured recommendations' (represented by a code icon). This is followed by 'Tagging, coding, explicit structure' (represented by a network icon) and 'Computable recommendations: Knowledge Graph' (represented by a brain icon, with 'SNOMED CT' noted below). The final step is 'Population Health/ Point of Care Applications' (represented by a laptop screen showing 'CQL', 'FHIR', and 'SMART' logos). The entire process is labeled 'BMJ Clinical Intelligence'. (BMJ Presentation at 20.) The BMJ Case Study with Sayvant gives an example in which “Sayvant integrates the BMJ clinical intelligence knowledge graph through a secure API connection” to support clinical reasoning in healthcare settings, which is consistent with receiving medical queries through the BMJ API. (2024 - BMJ Sayvant Case Study ("BMJ Case Study") at 3.) 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.)

#	'883 Patent Claim	Accused Product
		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." <i>Technical Architecture</i>, available at https://clinicalintelligence.bmj.com/technical-architecture/ (last visited September 2, 2026) ("BMJ Website: Technical Architecture").  (BMJ Website: Technical Architecture.) An article from Healthcare IT Today reporting on a discussion with Derrick Leung, Business Development Director at BMJ Group, describes that BMJ is "moving that [publishing medical evidence] knowledge base directly into the clinical workflow via an API." <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 September 2, 2026) ("Healthcare IT Today Article").
1b	wherein said knowledge graph includes a plurality of nodes, which include a plurality of medical condition	BMJ Clinical Intelligence comprises a database that stores a knowledge graph including a plurality of nodes, which include a plurality of medical condition nodes, a plurality of finding nodes, and a plurality of investigation nodes.

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	nodes, a plurality of finding nodes, and a plurality of investigation nodes,	The knowledge graph in BMJ's Clinical Intelligence Presentation includes many different types of nodes. The knowledge graph architecture diagrams in the BMJ Presentation shows that the nodes can include "Condition" nodes, "Finding" nodes, and "Investigation" nodes. Knowledge Graph Architecture  (BMJ Presentation at 30.)  (BMJ Presentation at 31.)

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) The Healthcare IT Today Article describes that BMJ’s “knowledge graphs map the dynamic relationships between symptoms, diseases, and treatments to provide a more flexible and accurate diagnostic pathway.” This description indicates that BMJ’s knowledge graph includes multiple symptoms and diseases as distinct, linked entries, consistent with the plurality of finding nodes and medical condition nodes recited in the claim.
1c	wherein at least one of said finding nodes in said knowledge graph is traversable to a first medical condition node to indicate that a finding represented by said at least one of said finding nodes is associated with a first medical condition represented by said first medical condition node,	At least one of the finding nodes in the knowledge graph for BMJ Clinical Intelligence is traversable to a first medical condition node to indicate a finding represented by at least one of the finding nodes is associated with a first medical condition represented by the first medical condition node. The BMJ knowledge graph of directly connects a “Finding” node of “wheezing” to a “Condition” node of “asthma” and indicates that “wheezing” is a “symptom” of “asthma.” While “wheezing” and “asthma” are used as examples of “Finding” and “Condition,” BMJ’s Clinical Intelligence uses many different findings and medical conditions that will equally meet this claim element.

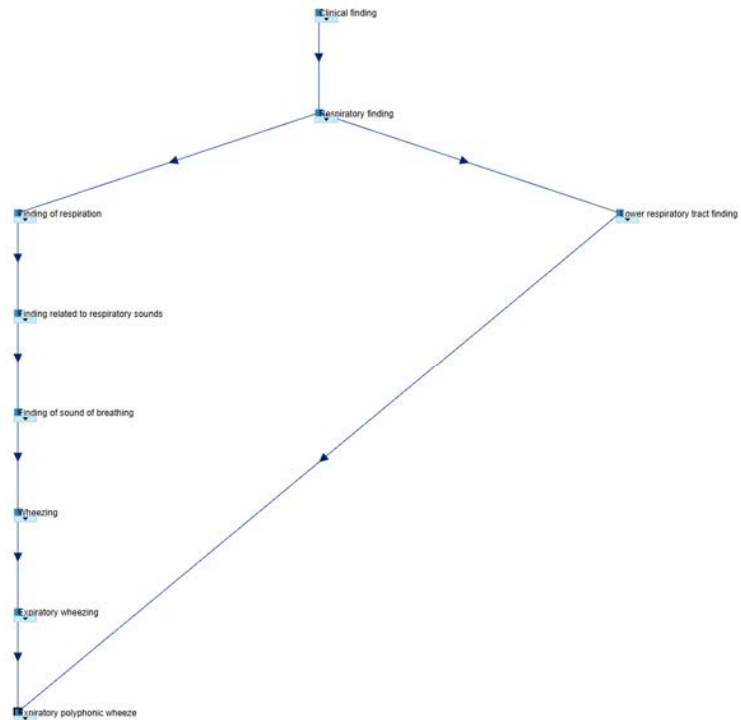
#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)
1d	and wherein at least one of said investigation nodes in said knowledge graph is traversable to a second medical condition node to indicate that an investigation represented by said at least one of said investigation nodes is associated with a second medical condition represented by said second medical condition node,	At least one of said investigation nodes in the knowledge graph for BMJ Clinical Intelligence is traversable to a second medical condition node to indicate an investigation represented by at least one of the investigation nodes is associated with a second medical condition represented by the second medical condition node. The knowledge graph of Clinical Intelligence shows that an “Investigation” node is pointed to a “Patient population definition” node, which in turn points to a “Condition” node. This shows that the “Investigation” node is traversable to the “Condition” node that indicates an investigation is associated with a condition.

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
1e	and wherein one or more of said nodes in said knowledge graph are extracted from a plurality of medical evidence sources and are linked to a medical terminology ontology,	One or more of the nodes in the knowledge graph for BMJ Clinical Intelligence are extracted from a plurality of medical evidence sources and are linked to a medical terminology ontology. 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.)

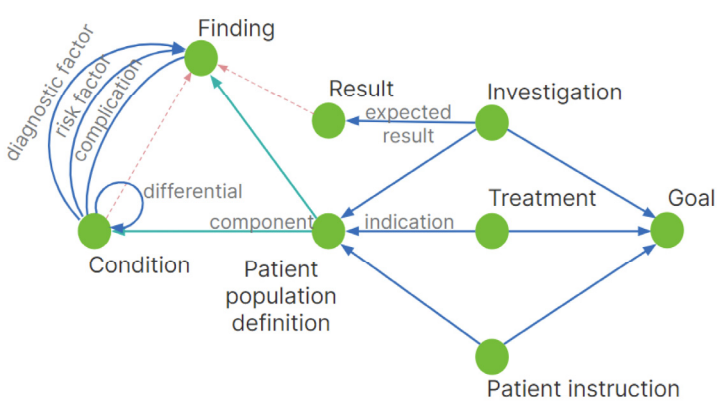
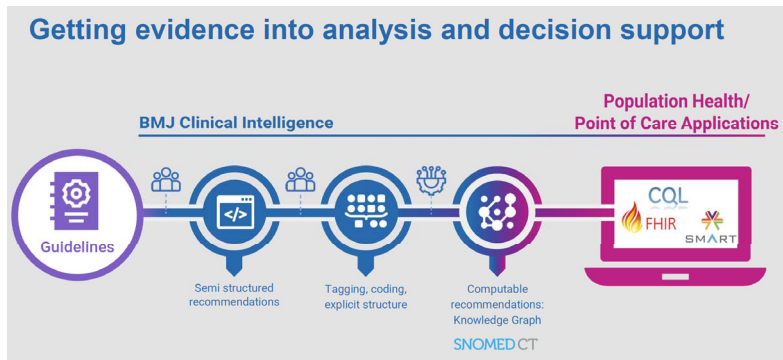
#	'883 Patent Claim	Accused Product
		The paragraph in the White Paper and the Presentation above indicate BMJ uses “rigorous editorial methodology” to turn the electronic text of its papers in clinical journals into “computable evidence in the form of a knowledge graph.” These are examples of BMJ extracting concepts from different medical evidence sources. Below is a specific example of how BMJ extracts an association between a finding and a condition from an electronic text to put such association into the knowledge graph of CI. In a paper (“Publication 1”) published on BMJ Open, “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 finding, is associated with “Asthma,” which is a condition. Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma In the knowledge graph of CI, BMJ has extracted such association and showed “wheezing” as a “Finding” node and “asthma” as a “Condition” node. (BMJ Presentation at 31.)

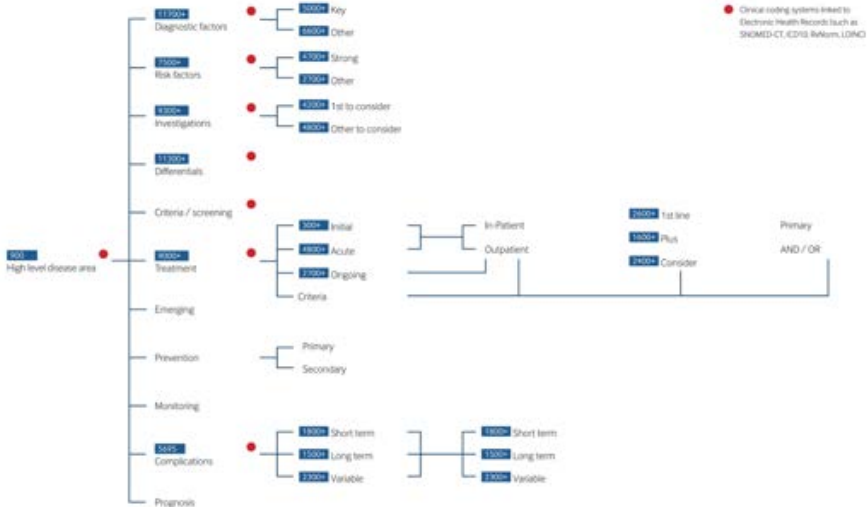
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		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” (examples of findings) that are associated with “disease,” which is an example of a condition. BMJ has also extracted different “investigation[s].” BMJ’s Clinical Intelligence website indicates that these nodes are linked in one or more medical terminology ontology, such as SNOMED and other ontologies. The website states the knowledge graph nodes with the dots are associated with “Clinical coding systems linked to Electronic Health Records (such as SNOMED-CT, ICD10, RxNorm, LOINC).”

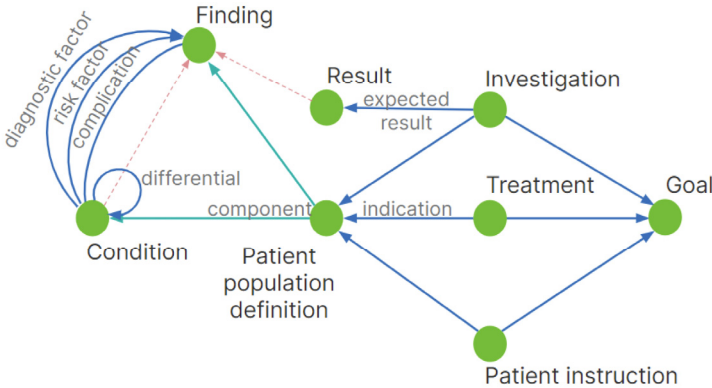
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		<i>Knowledge Graph Architecture</i>, available at https://clinicalintelligence.bmj.com/knowledge-graph-architecture/ (last visited September 2, 2026) (“BMJ Website: Knowledge Graph Architecture”). SNOMED shows “wheezing” in a hierarchy below. SNOMED is a medical terminology ontology.

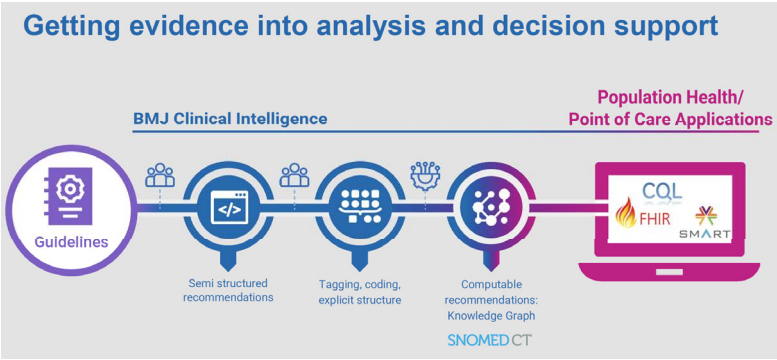
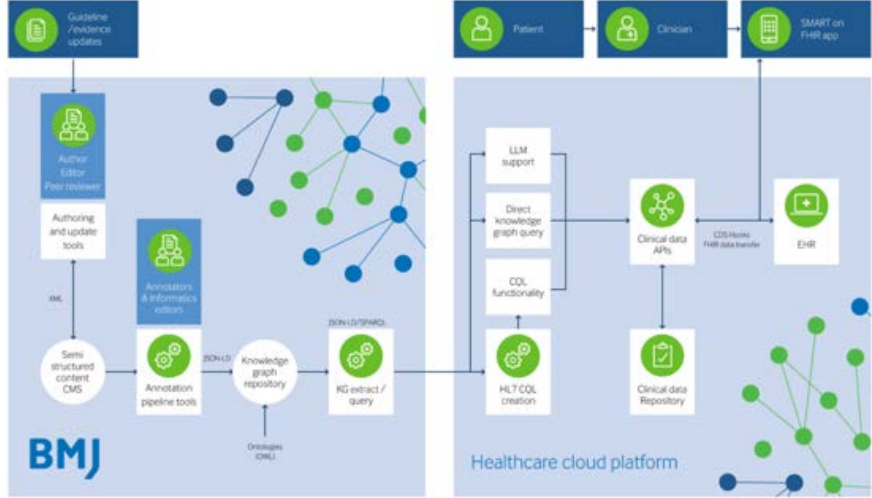
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		 <pre> graph TD CF[Clinical finding] --> RF[Respiratory finding] RF --> FR[Finding of respiration] RF --> URTF[Upper respiratory tract finding] FR --> FRS[Finding related to respiratory sounds] FRS --> FSB[Finding of sound of breathing] FSB --> W[Wheezing] W --> EW[Expiratory wheezing] EW --> EPW[Expiratory polyphonic wheeze] URTF --> EPW </pre> <i>SNOMED CT, US Edition</i>, available at https://bioportal.bioontology.org/ontologies/SNOMEDCT?p=classes&conceptid=http%3A%2F%2Fpurl.bioontology.org%2Fontology%2FSNOMEDCT%2F301703002 (last visited September 2, 2026) ("Website: Bioportal"). Publication 1 also shows various nodes in CI's knowledge graph are originally represented in a medical terminology ontology that is shown in Table 1 of the paper.

#	'883 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 ▶ 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.)	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 ▶ 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															
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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															
1f	wherein said knowledge graph is configured to support reasoning capability by allowing traversal of ancestor-descendant relationships among one or more of said medical condition nodes, said finding nodes, or said investigation nodes,	The knowledge graph for BMJ Clinical Intelligence is configured to support said reasoning capability by allowing traversal of ancestor-descendant relationships among one or more of the medical condition nodes, finding nodes, or investigation nodes. The directionality illustration in the slide below from the Clinical Intelligence Presentation shows that the knowledge graph of Clinical Intelligence has reasoning capability and allows “traversal of ancestor-descendant relationships among one or more of said medical condition nodes, said finding nodes, or said investigation nodes” as recited in the claim.														

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		Knowledge Graph Architecture  (BMJ Presentation at 30.) The Healthcare IT Today Article describes that BMJ’s “knowledge graph is not like traditional clinical decision support which is rules-based. Our knowledge graph is based on relationships.”
1g	and wherein said medical terminology ontology includes a Systemized Nomenclature of Medicine—Clinical Terms (SNOMED-CT) database, or a Logical Observation Identifiers, Names, and Codes (LOINC) database;	Said medical terminology ontology for BMJ Clinical Intelligence includes a Systemized Nomenclature of Medicine-Clinical Terms (SNOMED-CT) database, or a Logical Observation Identifiers, Names, and Codes (LOINC) database. BMJ’s presentation displays a user of SNOMED-CT as a part of the “Computable recommendations: Knowledge Graph.” 

#	'883 Patent Claim	Accused Product
		(BMJ Presentation at 20.) BMJ's Clinical Intelligence website indicates that CI's knowledge graph nodes are "linked to Electronic Health Records (such as SNOMED-CT, ICD10, RxNorm, LOINC)."  (BMJ Website: Knowledge Graph Architecture.)
1h	identifying, using said reasoning capability, a set of ancestor-descendant relationships of said knowledge graph that are relevant to said medical query, wherein said reasoning capability including traversing said knowledge graph to identify one or more of said medical condition nodes, said finding nodes, or said	BMJ Clinical Intelligence identifies, using said reasoning capability, a set of ancestor-descendant relationships of said knowledge graph that are relevant to said medical query, wherein said reasoning capability including traversing said knowledge graph to identify one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query. Based on the query, BMJ traverses the knowledge graph to identify relevant nodes, as illustrated in the slide below.

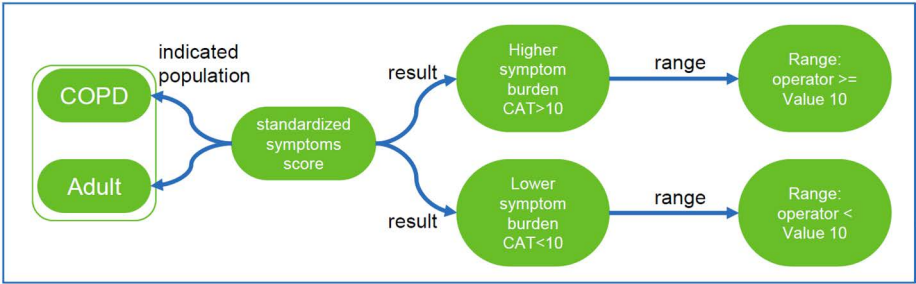
#	'883 Patent Claim	Accused Product
	investigation nodes that are relevant to said medical query; and	Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's White Paper also shows that Clinical Intelligence allows a traversal of the knowledge graph to "identify one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query" as recited in the claim. For example, the White Paper explains that the knowledge graph allows us to "look across the graph for relationships between diseases and other diseases, between diseases and findings, [and] between findings and other findings" consistent with traversing the knowledge graph to identify related conditions or findings based on the links. (BMJ White Paper at 9.) Knowledge graphs allow us to reason in different ways as compared to simple rule-based approaches. A knowledge graph allows us to use semantic reasoning and look across the graph for relationships between diseases and other diseases, between diseases and findings, between findings and other findings, between findings and drugs, and even between drugs and diseases. (BMJ White Paper at 9.) The Healthcare IT Today Article additionally describes that BMJ's "knowledge graph is not like traditional clinical decision support which is rules-based. Our knowledge graph is based on relationships." (Healthcare IT Today Article)
li	outputting, responsive to said medical query, an	BMJ Clinical Intelligence outputs, responsive to said medical query, an output to said software application.

#	'883 Patent Claim	Accused Product
	output to said software application,	BMJ has established one or more APIs for receiving medical queries from a software application to query CI's knowledge graph. Clinical Intelligence can provide a response to the medical query through the API endpoints. Getting evidence into analysis and decision support  (BMJ Presentation at 20.) BMJ's Clinical Intelligence website "technical architecture" page also 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.)

#	'883 Patent Claim	Accused Product
1j	wherein said output includes data related to one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query in order for said software application to generate a medical determination.	BMJ has indicated that the use cases of Clinical Intelligence include “directing care,” “support next best clinical action.” (BMJ Presentation at 21.) This shows that the knowledge graph enables software to generate “a healthcare determination,” as recited in the claim.  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.) 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.)

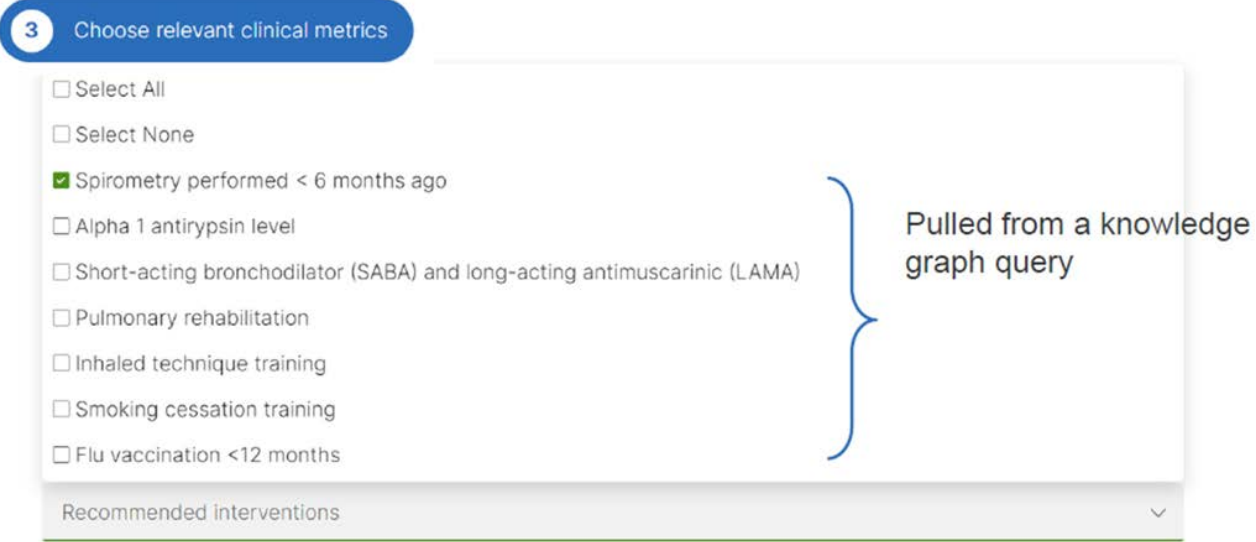
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2	2. A method as recited in claim 1 wherein each	The knowledge graph stored by the database of BMJ Clinical Intelligence includes investigation nodes that are linked to a corresponding result node holding a result of each investigation, and each

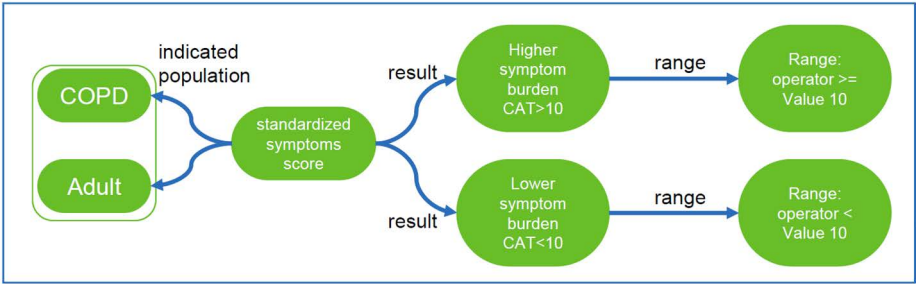
#	'883 Patent Claim	Accused Product
	of said investigation nodes is linked to a corresponding result node holding a result of said each investigation node, each of said corresponding result nodes being linked to said at least one of said medical condition nodes to which said each investigation node is linked.	of the corresponding result nodes is linked to at least one of the medical condition nodes to which each investigation node is linked. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. The BMJ Presentation shows a “Result” node linked to the “Investigation” node in the knowledge graph architecture and labels the edge joining the two “expected result.” (BMJ Presentation at 30.) This labeled link is consistent with an investigation node being linked to a corresponding result node as claimed. Knowledge Graph Architecture (BMJ Presentation at 30.) BMJ’s example pictured below further shows the knowledge graph structure populated with example content. The “standardized symptoms score” investigation node is linked to two “result” nodes “Higher symptom burden CAT>10” and “Lower symptom burden CAT<10.” That same investigation node is joined by an “indicated population” edge to the “COPD” condition node. (BMJ Presentation at 37, 38.) Because the investigation node and its two result nodes occupy a common path to the COPD condition node, each result node is linked to the same medical condition node to which the investigation node is linked. This is consistent with at least one result node being linked to medical condition nodes.

#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 37.)

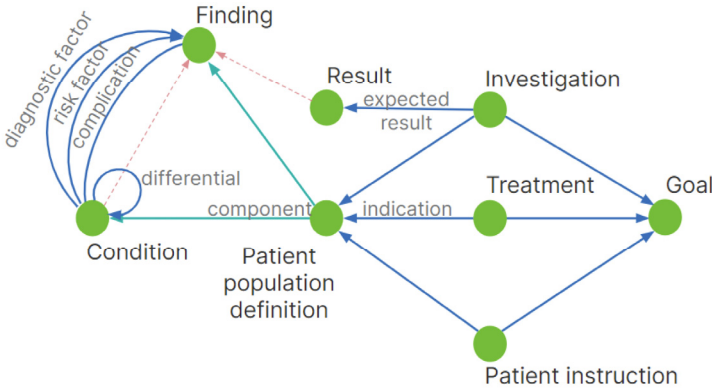
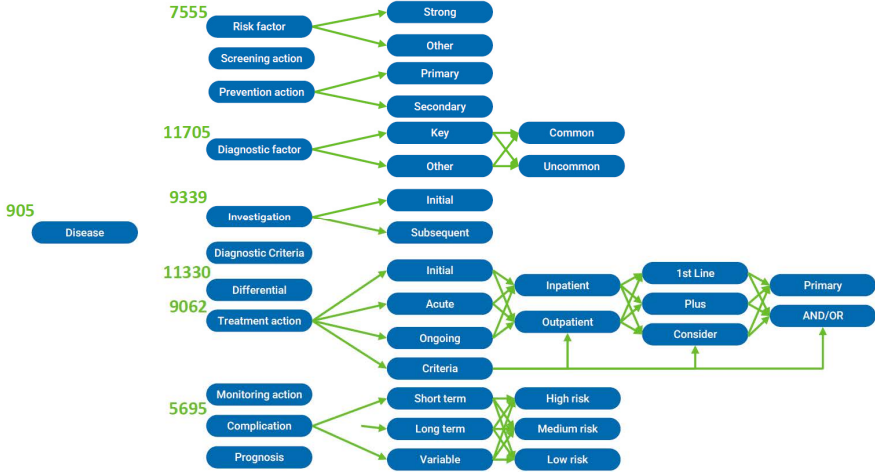
#	'883 Patent Claim	Accused Product
3	3. A method as recited in claim 2 wherein each of said investigation nodes represents a laboratory test or an examination, and wherein said result node corresponding to said each of said investigation nodes represents a result of said laboratory test or said examination.	In BMJ Clinical Intelligence, each of said investigation nodes represents a laboratory test or an examination, and wherein said result node corresponding to said each of said investigation nodes represents a result of said laboratory test or said examination. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's node category legend for the knowledge graph lists "Test" as one of the node categories of the graph and a test includes results from laboratory tests or examinations. (BMJ Presentation at 33.) Therefore, the investigation nodes can include nodes that correspond to the result of a test or a laboratory examination.

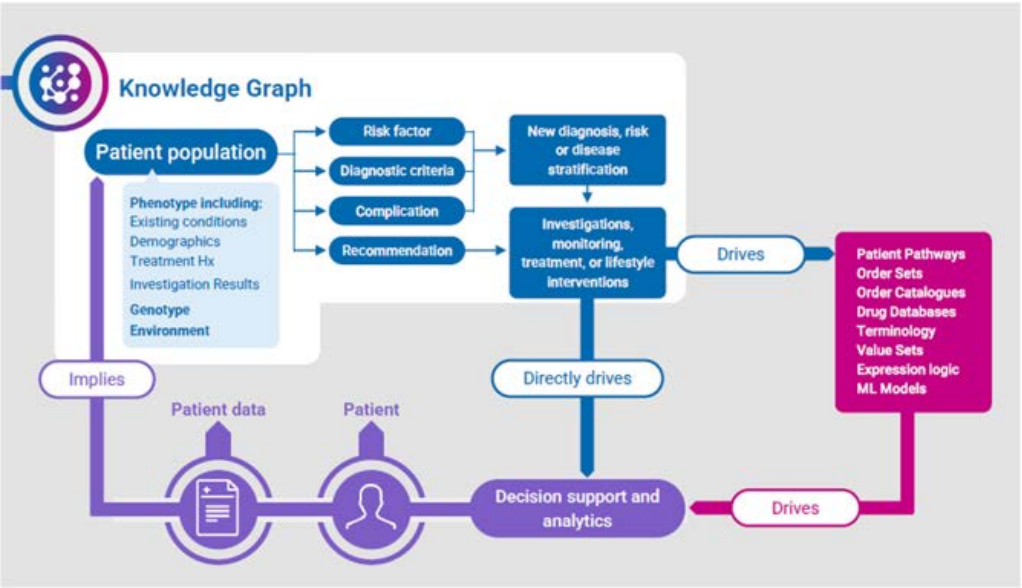
#	'883 Patent Claim	Accused Product
		(BMJ Presentation at 33.) The investigations BMJ returns from the knowledge graph in its provided example are laboratory tests and clinical examinations, including spirometry, alpha-1 antitrypsin level, and eosinophils levels, each of which BMJ states is “[p]ulled from a knowledge graph query” (BMJ Presentation at 36, 39.) Pulled from a knowledge graph query ☐ Select All ☐ Select None ☒ CAT score >10 ☐ CAT score <10 ☐ Exacerbations >2 per year ☒ Exacerbations <2 per year ☐ Eosinophils >150 ☐ Eosinophils <150 (BMJ Presentation at 36.)

#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 39.) Spirometry is a pulmonary function examination, and alpha-1 antitrypsin and eosinophil levels are laboratory tests. Their inclusion in the knowledge graph query results shows that CI's investigation nodes represent laboratory tests and examinations rather than abstract categories. The corresponding result nodes hold the results of those tests. The "standardized symptoms score" investigation node resolves through "result" edges to "Higher symptom burden CAT>10" and "Lower symptom burden CAT<10," each of which is further qualified by a "range" edge to a node reciting an operator and a value. (BMJ Presentation at 37.) Each result node therefore holds the result of the corresponding investigation, expressed as the score band that the test produced, as claimed.

#	'883 Patent Claim	Accused Product
		 <pre> graph LR subgraph IndicatedPopulation [indicated population] COPD Adult end IndicatedPopulation --> SSS[standardized symptoms score] SSS -- result --> HS[Higher symptom burden CAT>10] SSS -- result --> LS[Lower symptom burden CAT<10] HS -- range --> R1[Range: operator >= Value 10] LS -- range --> R2[Range: operator < Value 10] </pre> (BMJ Presentation at 37.)

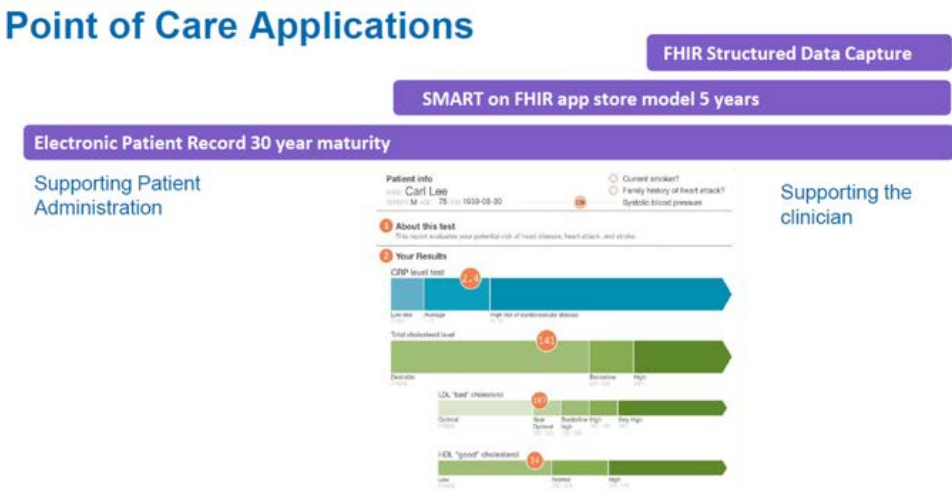
#	'883 Patent Claim	Accused Product
4	4. A method as recited in claim 1 wherein said finding nodes are diagnostic factor nodes.	In the knowledge graph stored by the database of BMJ Clinical Intelligence, said finding nodes are diagnostic factor nodes. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. In BMJ's knowledge graph diagram, the edge running from the "Condition" node to the "Finding" node is labeled "diagnostic factor." (BMJ Presentation at 30.) BMJ's architecture slide also enumerates "Diagnostic factor" as an available node category for the stored knowledge graph and reports 11,705 such nodes. (BMJ Presentation at 32.) These architecture notes indicate that "finding" nodes can be a type of "diagnostic factor" node in the BMJ knowledge graph.

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” (examples of findings).

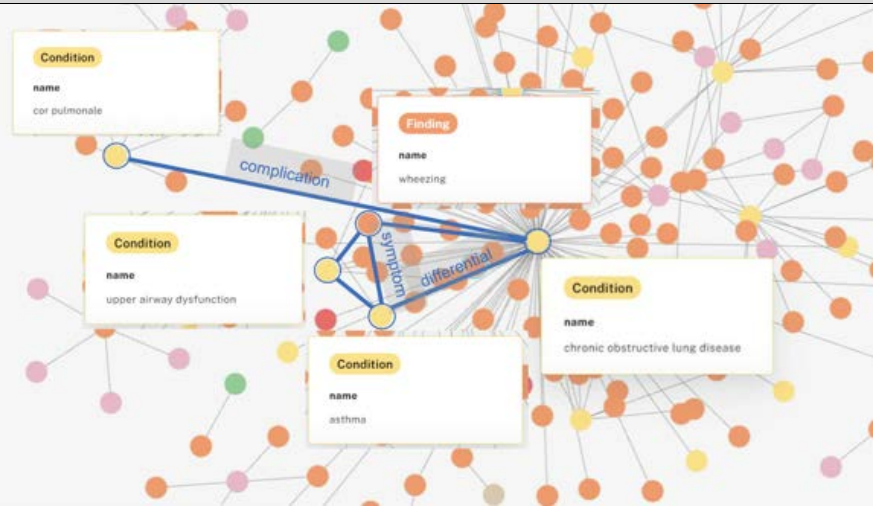
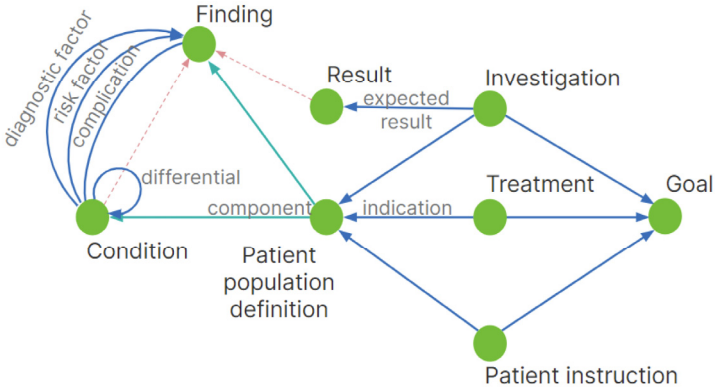
#	'883 Patent Claim	Accused Product
5	5. A method as recited in claim 1 wherein said software application is an artificial intelligence (AI) application.	In BMJ Clinical Intelligence, said software application is an artificial intelligence (AI) application. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ identifies “AI deployment” as a use case for its knowledge graph and describes “evidence derived data for training, testing, and monitoring AI models,” and “heuristically supervised learning.” (BMJ Presentation at 21.) This indicates that the BMJ Clinical Intelligence application is an AI application. AI deployment • Evidence derived data for training, testing and monitoring AI models • Heuristically supervised learning (BMJ Presentation at 21.) BMJ’s “Sustainable patient centred cycle” diagram also shows the knowledge graph driving “ML Models,” which can be involved in AI systems. (BMJ Presentation at 45.)  (BMJ Presentation at 45.)

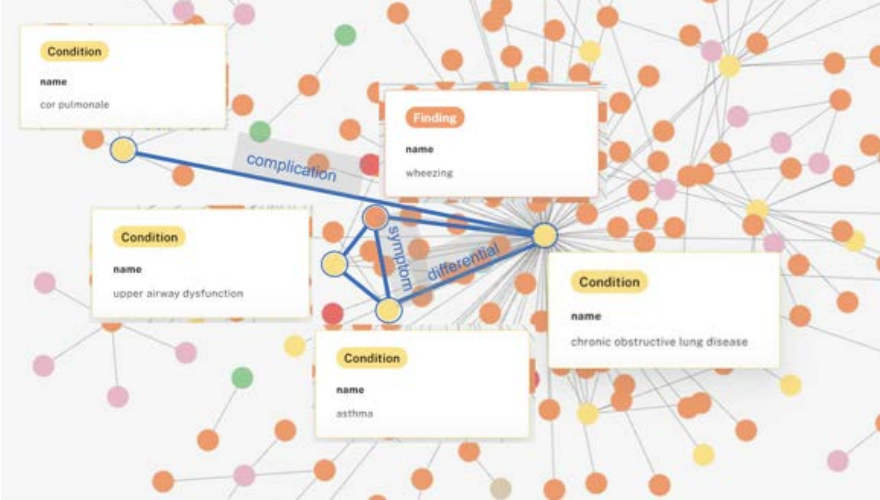
#	'883 Patent Claim	Accused Product
		Additionally, the BMJ White Paper explains that the knowledge graph “complements large language models, enhancing clinical reasoning and decision support.” (BMJ White Paper at 3.) The White Paper further describes “fusion models where parts of the inference might be done by a large language model and parts done by a knowledge graph,” which is consistent with an AI software application querying the knowledge graph. (BMJ White Paper at 11.) Machine learning models and large language models are artificial intelligence applications. BMJ describes those applications as the consumers of the knowledge graph’s output, which is the relationship this element recites between the knowledge graph and the software application it serves. The knowledge graph’s advantages over traditional guidelines lie in its ability to represent an entire domain, providing a holistic view of patient care. It complements large language models, enhancing clinical reasoning and decision support. The continuous updating and scalability (BMJ White Paper at 3.) The knowledge graph can also assess the output of large language models to validity check or to look for hallucinations or fabrications. Using a knowledge graph with a large language model also allows attribution of the references and source material. And the knowledge graphs and large language models can work together in a fused way – so-called fusion models where parts of the inference might be done by a large language model and parts done by a knowledge graph, with both working in synchrony. (BMJ White Paper at 11.)

#	'883 Patent Claim	Accused Product
6a	6. A method as recited in claim 1 wherein said medical query includes at least one patient diagnostic factor extracted from an electronic health record (EHR) of a patient,	The medical query submitted to BMJ Clinical Intelligence includes at least one patient diagnostic factor extracted from an electronic health record (EHR) of a patient. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. 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.)

#	'883 Patent Claim	Accused Product
		Point of Care Applications  The screenshot displays a user interface for a Point of Care Application. At the top, there are three purple banners: 'FHIR Structured Data Capture', 'SMART on FHIR app store model 5 years', and 'Electronic Patient Record 30 year maturity'. Below these, the interface is split 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 profile for 'Carl Lee' (DOB: 1959-08-20) with checkboxes for 'Current smoker?' and 'Family history of heart attack?'. Below this, there are three horizontal bar charts showing test results: 'COP level test' (25%), 'Total cholesterol level' (151), and 'LDL "bad" cholesterol' (107). Each chart has a color-coded bar and a numerical value. The bottom section shows a dropdown menu for 'Clinical area: COPD'. (BMJ Presentation at 26.)
6b	said method further comprising: matching said patient diagnostic factor to one of said finding nodes,	BMJ Clinical Intelligence matches said patient diagnostic factor to one of said finding nodes. For example, BMJ illustrates matching patient 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.  The screenshot shows a blue button labeled '1 Choose a clinical area'. Below it, the text 'Dr Smith chooses an area of clinical interest' is displayed. Underneath, there is a light gray box containing the text 'Clinical area: COPD' and a small downward arrow icon. (BMJ Presentation at 35.)

#	'883 Patent Claim	Accused Product																														
		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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#	'883 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.)

#	'883 Patent Claim	Accused Product
6c	wherein said output is a medical condition associated with one of said medical condition nodes to which said one of said finding nodes is linked.	The output of BMJ Clinical Intelligence is a medical condition associated with one of said medical condition nodes to which said one of said finding nodes is linked. BMJ's graph view shows the "Finding" node for wheezing is joined to the "Condition" node for asthma by a "symptom" edge. (BMJ Presentation at 31.) Returning asthma in response to a record mentioning wheezing is an output of a medical condition associated with the condition node to which the matched "finding" diagnostic factor node is linked.  (BMJ Presentation at 31.) BMJ's White Paper also explains that the knowledge graph is queried to "accelerate the differential diagnosis reasoning process" (e.g., diagnosis output), indicative of outputting a medical condition to which a finding node is linked. (BMJ White Paper at 8.) It can help in cases of diagnostic error or diagnostic delay. Patients might have a delayed diagnosis which can be impactful on their clinical course. The knowledge graph can be used to help accelerate the differential diagnosis reasoning process to augment the clinical reasoning of the physician and so avoid error or delay. (BMJ White Paper at 8.)

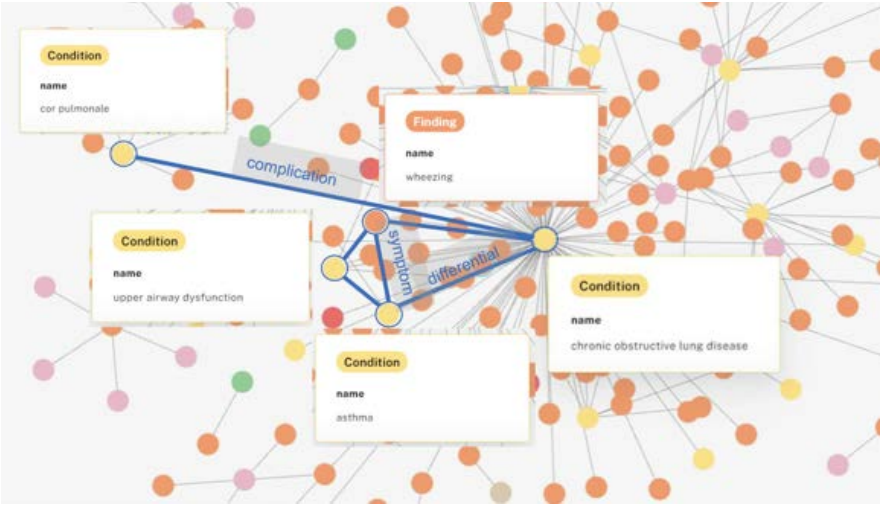
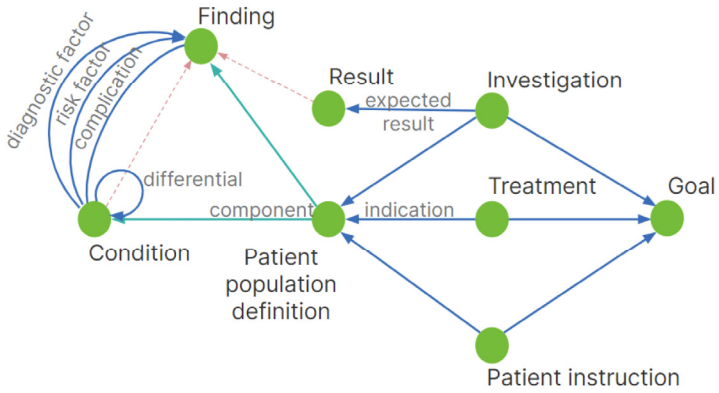
#	'883 Patent Claim	Accused Product																														
		The BMJ Presentation includes an example of a clinician using the knowledge graph to produce identification of (e.g., output) patient records associated with COPD (e.g., medical condition). The example report that 12 of 75 patients (16%) have COPD or spirometry listed in their record is an example of an output of the medical condition associated with the medical condition nodes. (BMJ Presentation at 40.) 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 COPD 12 Spirometry 9 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.)	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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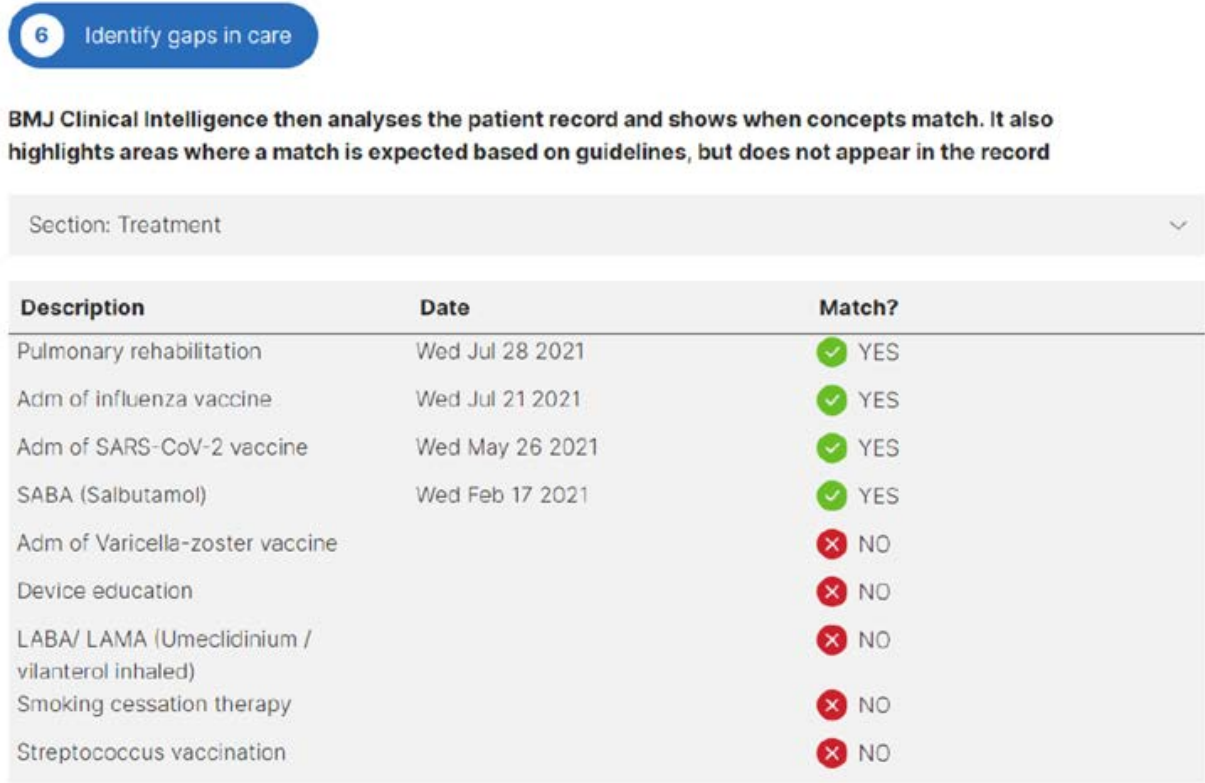
#	'883 Patent Claim	Accused Product
7a	7. A method as recited in claim 1 wherein said medical query is a clinical state of a patient including at least one likely medical condition	The medical query submitted to BMJ Clinical Intelligence is a clinical state of a patient including at least one likely medical condition of said patient and at least one patient diagnostic factor. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1.

#	'883 Patent Claim	Accused Product
	of said patient and at least one patient diagnostic factor,	In BMJ's example, Dr. Smith first selects a clinical area of interest, "Clinical area: COPD," as the starting point for the query. (BMJ Presentation at 35.) The query is then built out with demographic, social, and clinical features drawn from the patient, including current cigarette smoking status and a "CAT score >10," where the results "pulled from a knowledge graph query." (BMJ Presentation at 36- 38.) In this example, COPD corresponds to a likely medical condition, and the smoking status and symptom score are patient diagnostic factors entered by the clinician as part of the query. The query BMJ runs against the knowledge graph is therefore consistent with the patient's clinical state, including both a likely condition and one or more diagnostic factors, as claimed. Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention.  Dr Smith chooses an area of clinical interest Clinical area: COPD (BMJ Presentation at 35.)

#	'883 Patent Claim	Accused Product
		Dr Smith identifies the cohort of patients she is interested in Age range: 65+ years old ▾ Demographic features: Ethnicity: Asian, Sex: Male ▾ Social features: Current cigarette smoker, Core 5: ▾ Clinical features ▾ Pulled from a knowledge graph query  ☐ Select All ☐ Select None ☒ CAT score >10 ☐ CAT score <10 ☐ Exacerbations >2 per year ☒ Exacerbations <2 per year ☐ Eosinophils >150 ☐ Eosinophils <150 (BMJ Presentation at 36.) BMJ's White Paper further explains that the graph can be queried to look for "deviations from a patient's expected course," which is indicative of querying based on a clinical state of the patient. (BMJ White Paper at 8.) 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.)
7b	said method further comprising: matching said patient diagnostic factor to one of said finding nodes, and	BMJ Clinical Intelligence matches said patient diagnostic factor to one of said finding nodes. BMJ performs matching of the patient diagnostic factors from the query to the diagnostic factor nodes in the graph. The BMJ presentation includes an example where "[t]he knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching

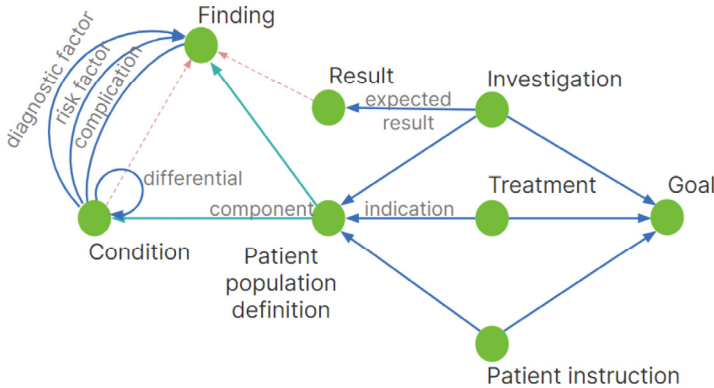
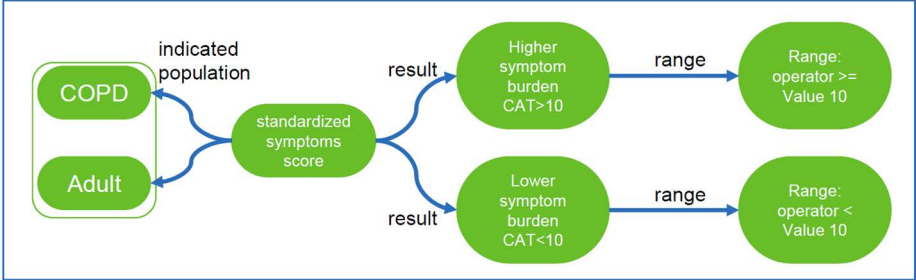
#	'883 Patent Claim	Accused Product																														
		to Quality Metric concepts and logic.” (BMJ Presentation at 40.) The patient records that mention COPD or spirometry correspond to the claimed patient diagnostic factors. “Driv[ing] the identification” of the patient records indicates that the patient records are matched against the information in the nodes of the knowledge graph. The example shows an accompanying display that reports the number of matching quality metric terms for each clinical description. (BMJ Presentation at 40.) More generally, BMJ describes this matching mechanism as extending across the patient record: “BMJ Clinical Intelligence then analyses the patient record and shows when concepts match.” (BMJ Presentation at 43.) 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 COPD Spirometry 12 9 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 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.)	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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#	'883 Patent Claim	Accused Product
		The patient record is matched against the nodes in the knowledge graph, including the “Finding” diagnostic factor nodes shown in the Presentation. (BMJ Presentation at 30, 31.) Matching an extracted patient diagnostic factor to those nodes demonstrates the claimed matching step.  (BMJ Presentation at 31.) Knowledge Graph Architecture  (BMJ Presentation at 30.)

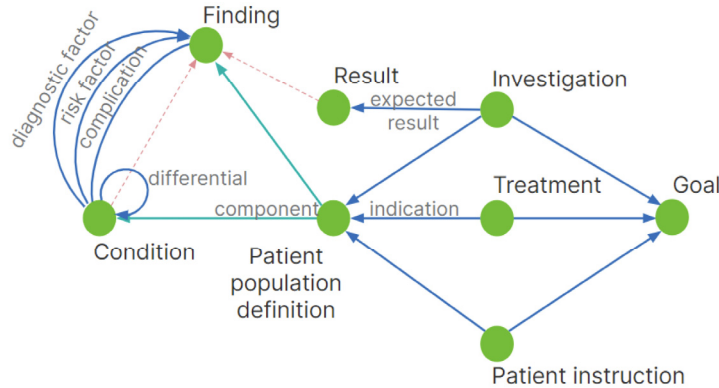
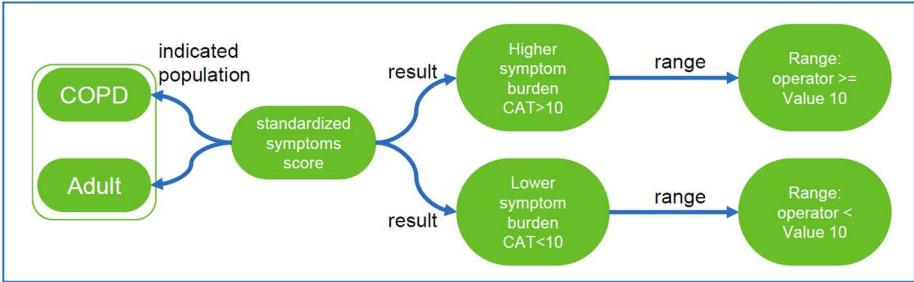
#	'883 Patent Claim	Accused Product																														
7c	wherein said output is an unknown diagnostic factor associated with one of said finding nodes that is not yet known to be present or absent in said patient.	The output of BMJ Clinical Intelligence can include an unknown diagnostic factor associated with one of said finding nodes that is not yet known to be present or absent in said patient. BMJ states that Clinical Intelligence “also highlights areas where a match is expected based on guidelines, but does not appear in the record.” (BMJ Presentation at 43.) A match not appearing in the patient record is consistent with the matched diagnostic factor not yet being known to be present or absent for the patient as claimed. As an example, the BMJ Presentation includes a “Match?” column in which items including varicella-zoster vaccination, device education, and smoking cessation therapy are flagged “NO,” meaning that the graph expected the concept as a possibility but that the concept could not be confirmed by the current patient record. (BMJ Presentation at 43.)  The screenshot shows a blue 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 lists treatments with their 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
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#	'883 Patent Claim	Accused Product
		BMJ's White Paper explains that when the patient state is matched against the knowledge graph, "it can tell us for example that we expected to know a certain fact about the patient but we do not see it." (BMJ White Paper at 9.) The output showing that an expected fact about the patient is not seen is consistent with outputting an unknown diagnostic factor that is not yet known to be present or absent in the 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.)

#	'883 Patent Claim	Accused Product
8	8. A method as recited in claim 1 wherein said each investigation node does not include information specific to a medical condition associated with one of said medical condition nodes to which said each investigation node is linked.	In BMJ Clinical Intelligence, each investigation node does not include information specific to a medical condition associated with one of the medical condition nodes to which the investigation node is traversable. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. 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 investigation separate from specific information about the medical condition details. (BMJ Presentation at 30.)

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's example in the presentation shows a similar arrangement. The investigation node is the generic instrument "standardized symptoms score" and the condition-specific content, namely the CAT thresholds and the operator and value ranges, are stored on separate result and range nodes downstream of the investigation node. (BMJ Presentation at 37, 38.) The investigation node therefore does not itself include information specific to COPD, or to any other condition to which it is traversable, as claimed.  (BMJ Presentation at 37.)

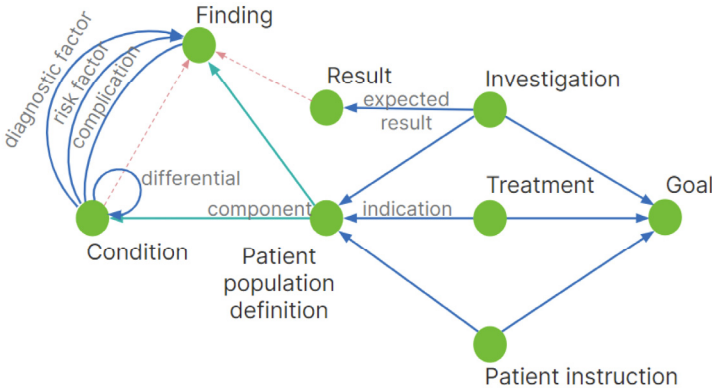
#	'883 Patent Claim	Accused Product
9	9. A method as recited in claim 1 wherein each of said investigation nodes is disambiguated across said plurality of medical condition nodes.	In the knowledge graph stored by the database of BMJ Clinical Intelligence, each of said investigation nodes is disambiguated across said plurality of medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ states that the knowledge graph approach “allows us to create a single model for a whole domain of practice,” as distinguished from condition-specific rule sets. (BMJ White Paper at 9.) The single model can in this way provide clarity (i.e., disambiguation) for how an investigation may relate to a plurality of medical conditions through the knowledge graph links. determine if they are all working appropriately in synchrony. The knowledge graph approach as opposed to the simple rule-based approach allows us to create a single model for a whole domain of practice be it in clinical medicine or population health. (BMJ White Paper at 9.) A single domain-wide model stored in one database requires that an investigation appearing in the pathway of more than one condition be represented once and resolved unambiguously wherever it is reached. BMJ Clinical Intelligence does this by routing every investigation to its conditions through patient population definition nodes rather than storing a separate investigation node per condition. (BMJ Presentation at 30.) The single “standardized symptoms score” node serving the indicated population of COPD and Adult is an instance of that design. (BMJ Presentation at 37.)

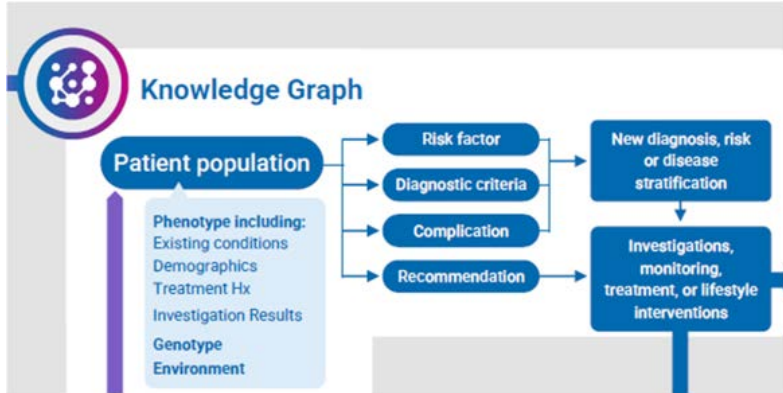
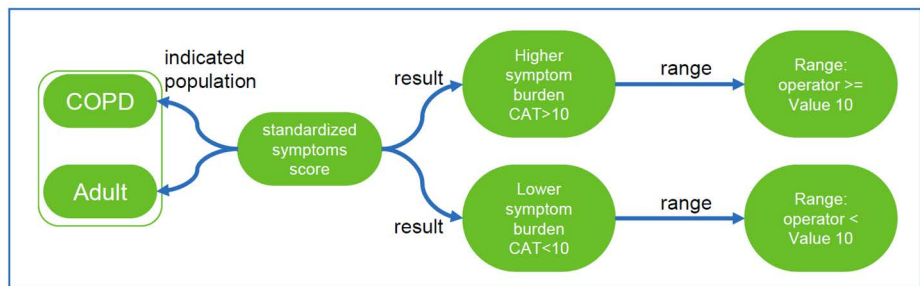
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)  (BMJ Presentation at 37.)

#	'883 Patent Claim	Accused Product
10	10. A method as recited in claim 1 wherein each of said investigation nodes is independent of said at least one of said medical condition nodes to which said each	In the knowledge graph stored by the database of BMJ Clinical Intelligence, each of the investigation nodes is independent of the at least one of the medical condition nodes to which each investigation node is traversable. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's architecture includes no direct edge between the "Investigation" node and the "Condition" node. The investigation reaches the condition only by traversing the intervening "Patient

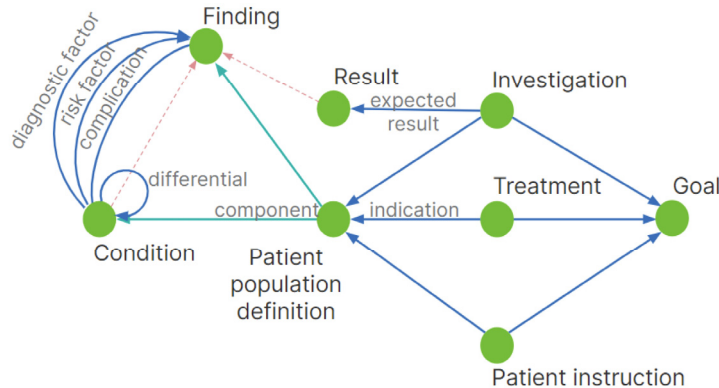
#	'883 Patent Claim	Accused Product
	investigation node is traversable.	population definition” node. (BMJ Presentation at 30.) That separation demonstrates that the investigation nodes and their stored data are independent from the condition nodes and their data. That is, the investigation node’s definition in the database does not depend on any particular condition because the condition is reached only by traversal. Knowledge Graph Architecture (BMJ Presentation at 30.) In the White Paper, BMJ explains why it considers independence of the condition nodes from the investigation entries important: “rules necessarily take a single disease perspective which will not work for patients with multimorbidity.” (BMJ White Paper at 5.) BMJ offers the knowledge graph as the alternative that avoids that coupling. There can be rule conflict and resultant confusion when multiple rules are operating that do not agree with each other. And rules necessarily take a single disease perspective which will not work for patients with multimorbidity. This is a big problem when up to one-third of the adult population has multimorbidity. Put simply, the clinical workforce is faced with an aging population with a growing number of complex interrelated problems. (BMJ White Paper at 5.)

#	'883 Patent Claim	Accused Product
11	11. A method as recited in claim 1 wherein said	The knowledge graph stored by the database of BMJ Clinical Intelligence further includes, for each of said investigation nodes, a data structure different from said each investigation node that is

#	'883 Patent Claim	Accused Product
	knowledge graph further includes for each of said investigation nodes, a data structure different from said each investigation node that is traversable to both said each investigation node and said at least one of said medical condition nodes to which said each investigation node is traversable, said data structure including attributes pertaining to said at least one of said medical condition nodes to which said each investigation node is traversable.	traversable to both said each investigation node and said at least one of said medical condition nodes to which said each investigation node is traversable, said data structure including attributes pertaining to said at least one of said medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's "Knowledge Graph Architecture" diagram shows a "Patient population definition" node positioned between the "Investigation" node and the "Condition" node, with the edge to the Condition node labeled "component." (BMJ Presentation at 30.) The Patient population definition node is consistent with the claimed data structure. It is a distinct node stored in the database, different from the investigation node, and it is traversable both to the investigation node and to the condition node. Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's patient centred cycle slide identifies the attributes of a patient population node, describing the patient population by its "Phenotype including: Existing conditions, Demographics, Treatment Hx, Investigation Results, Genotype, Environment." (BMJ Presentation at 45.) Those attributes pertain to the medical condition node to which the investigation node is traversable. BMJ's example shows the same structure populated, with the "standardized symptoms score" investigation node reaching an indicated population comprising COPD and Adult through an "indicated population" edge. (BMJ Presentation at 37.)

#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 45.)  (BMJ Presentation at 37.)

#	'883 Patent Claim	Accused Product
12a	12. A method as recited in claim 1 wherein at least one of said investigation nodes is traversable to at least two of said medical condition nodes and	In the knowledge graph stored by the database of BMJ Clinical Intelligence, at least one of said investigation nodes is traversable to at least two of said medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ describes the knowledge graph as “a comprehensive domain model that is not single disease-specific or single drug-specific.” (BMJ White Paper at 12.) BMJ further explains that the graph permits it to take a disease and find all of the neighboring diseases and comorbidities to which that disease is connected. (BMJ White Paper at 8.) This indicates that a disease (i.e., condition node)

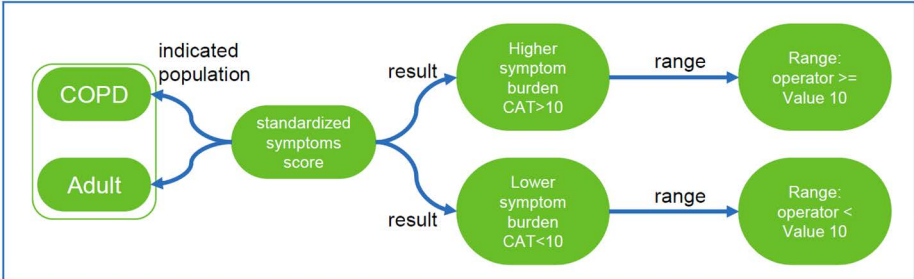
#	'883 Patent Claim	Accused Product
		will be linked to multiple other nodes such as multiple investigation nodes which may lead to that condition. Traditional guidelines typically cover the diagnosis and management of a single disease. Knowledge graphs are more like a whole encyclopedia – a comprehensive domain model that is not single disease-specific or single drug-specific. Knowledge graphs allow us to model an entire domain. We can fuse knowledge graphs together from different domains and then they (BMJ White Paper at 12.) 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.) BMJ allows investigation nodes to route to multiple condition nodes by routing investigations to conditions through Patient population definition nodes, which are in turn reached from multiple conditions. (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 30.)

#	'883 Patent Claim	Accused Product
12b	wherein said at least one of said investigation nodes does not include information specific to medical conditions associated with said at least two of said medical condition nodes.	In BMJ Clinical Intelligence, said at least one of said investigation nodes does not include information specific to medical conditions associated with said at least two of said medical condition nodes. The investigation node in the BMJ knowledge graph architecture 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 a clinical investigation does not include information specific to the medical condition, but could link to many conditions. (BMJ Presentation at 30.) Knowledge Graph Architecture (BMJ Presentation at 30.)

#	'883 Patent Claim	Accused Product
13	13. A method as recited in claim 1 wherein said knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, a ranking value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node.	On information and belief, the BMJ Clinical Intelligence knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, a ranking value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1.

#	'883 Patent Claim	Accused Product
	each medical condition node is traversable, a ranking value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node.	For example, traversing BMJ's graph database from one diagnostic factor (which could be an investigation) to a medical condition produces a rank that may be different from traversing from that same diagnostic factor to another medical condition. BMJ's case study with Sayvant illustrates this by showing that the same patient finding 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.

#	'883 Patent Claim	Accused Product
		(BMJ Case Study at 8.)

#	'883 Patent Claim	Accused Product
14	14. A method as recited in claim 1 wherein said knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, at least one condition-dependent attribute of a medical condition represented by said each medical condition node.	The knowledge graph stored by the database of BMJ Clinical Intelligence further includes, on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, at least one condition-dependent attribute of a medical condition represented by said each medical condition node. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. The example shown in the BMJ Presentation demonstrates condition-dependent attributes on the path between a medical condition node and an investigation node. The “standardized symptoms score” investigation node is joined to its indicated population by an “indicated population” edge, and the score bands and operator-and-value ranges downstream of that node are specific to the COPD population. (BMJ Presentation at 37.)  (BMJ Presentation at 37.) The CAT threshold of 10 shows the threshold BMJ applies for COPD, sourced to the GOLD COPD guideline that BMJ links to the same subgraph by an “evidence” edge. (BMJ Presentation at 38.) The CAT > 10 threshold is therefore a condition-dependent attribute of the condition represented by the COPD node, stored on the path between the COPD condition node and the investigation node.

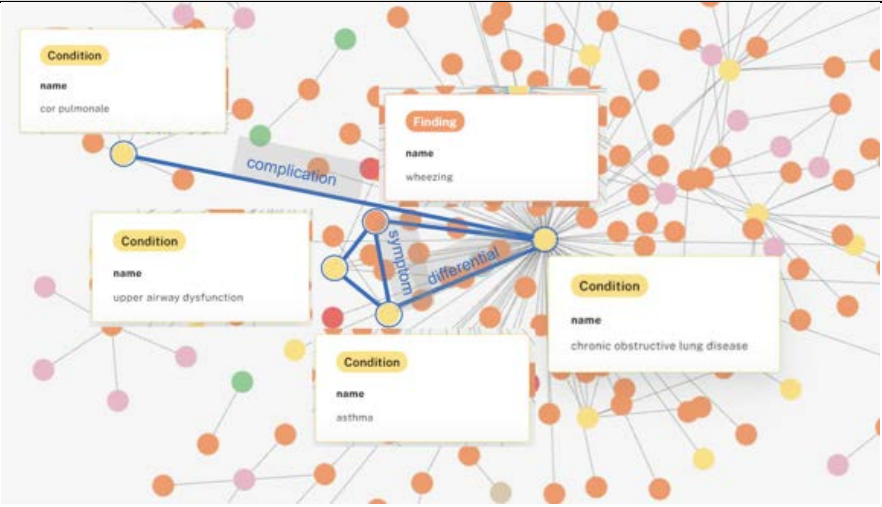
#	'883 Patent Claim	Accused Product
		Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: 2023 report [https://goldcopd.org/2023-gold-report-2/] ☐ Select All ☐ Select None ☒ CAT score >10 <pre> graph LR subgraph IndicatedPopulation [indicated population] COPD Adult end IndicatedPopulation --> SSS[standardized symptoms score] SSS -- result --> HS[Higher symptom burden CAT>10] SSS -- result --> LS[Lower symptom burden CAT<10] HS -- range --> R1[Range: operator >= Value 10] LS -- range --> R2[Range: operator < Value 10] </pre> (BMJ Presentation at 38.)

#	'883 Patent Claim	Accused Product
15a	15. A method as recited in claim 1 wherein said software application is a natural language processing (NLP) engine that receives verbatim text and produces said medical query that includes a patient diagnostic factor or a patient medical condition, and	On information and belief, in BMJ Clinical Intelligence, said software application may be a natural language processing (NLP) engine that receives verbatim text and produces said medical query that includes a patient diagnostic factor or a patient medical condition. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. 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 eXtyle).”

#	'883 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 <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.) Knowledge graphs may leverage, work with, or complement large language models both to extract features, define relationships, and make associations, as well as to potentially fuse knowledge graph approaches and large language models to improve prompt engineering. (BMJ White Paper at 11.)

#	'883 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.)
15b	wherein said matching a portion includes matching said patient diagnostic factor to said at least one of said finding nodes or matching said patient medical condition to said at least one of said medical condition nodes to produce said output.	In BMJ Clinical Intelligence said matching a portion includes matching said patient diagnostic factor to said at least one of said finding nodes or matching said patient medical condition to said at least one of said medical condition nodes to produce said output. 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.)

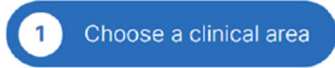
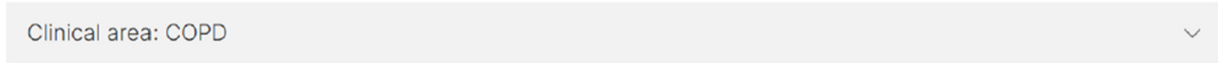
#	'883 Patent Claim	Accused Product																														
		The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total 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?																											
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Aiden Jones	55	M	Y	Y	✓ YES																											

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

#	'883 Patent Claim	Accused Product
16	16. A method as recited in claim 15 wherein said NLP engine is initialized with at least one of said plurality of finding nodes from said knowledge graph in order to facilitate said matching.	On information and belief, in BMJ Clinical Intelligence said NLP engine is initialized with at least one of said plurality of finding nodes from said knowledge graph in order to facilitate said matching. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 15. 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 eXtypes).”

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		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.)

#	'883 Patent Claim	Accused Product
17	17. A method as recited in claim 1 wherein said software application causes said output to be displayed on a computer to a user.	The software application served by BMJ Clinical Intelligence causes said output to be displayed on a computer to a user. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1.

#	'883 Patent Claim	Accused Product
		The BMJ Presentation includes a series of screen displays in which BMJ describes a clinician using the knowledge graph to design a quality metric, "employing real-time performance dashboards to highlight patients in need of intervention." (BMJ Presentation at 35.) The knowledge graph query results are rendered to the user as on-screen tables and controls, including the matching quality metric counts, the patient-level match table, and the care gap table. (BMJ Presentation at 40, 42, 43.) Each of those displays is generated by an application that renders the output on a computer to a clinician user, as claimed. Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention.  Dr Smith chooses an area of clinical interest  (BMJ Presentation at 35.)

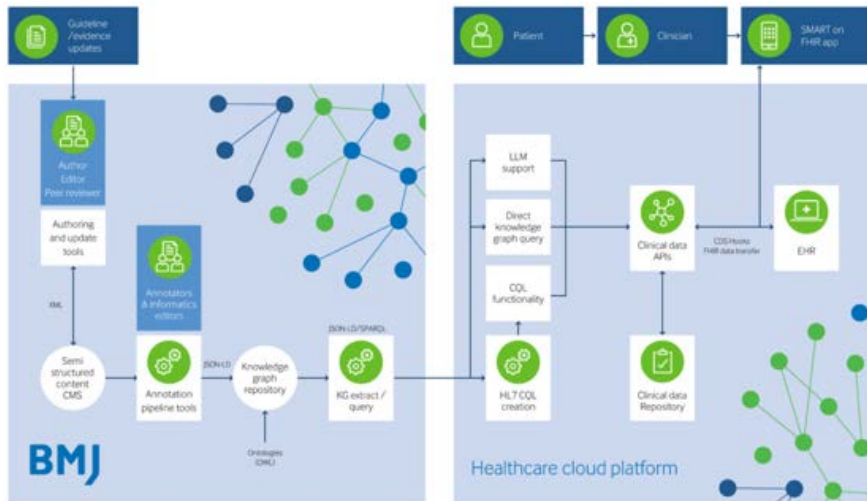
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		The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total patients Matching 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).	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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Aiden Jones	55	M	Y	Y	✓ YES																											

#	'883 Patent Claim	Accused Product				
		If Dr Smith wants to stratify these patients further, she can filter by either patient name or clinical description Name: Liam Smith, Mason Anderson, Scarlett Garc ▾ Clinical description: Smoker, Vaping ▾ <table><thead><tr><th>Patient ID</th><th>Risk factors indentified in patient record</th></tr></thead><tbody><tr><td>Liam Smith</td><td>2</td></tr></tbody></table> Dr Smith has identified the patient(s) at highest risk, and can now send an alert to invite them to undergo spirometry Name: Liam Smith ▾ Send alert Move to point of care setting (BMJ Presentation at 42.)	Patient ID	Risk factors indentified in patient record	Liam Smith	2
Patient ID	Risk factors indentified in patient record					
Liam Smith	2					

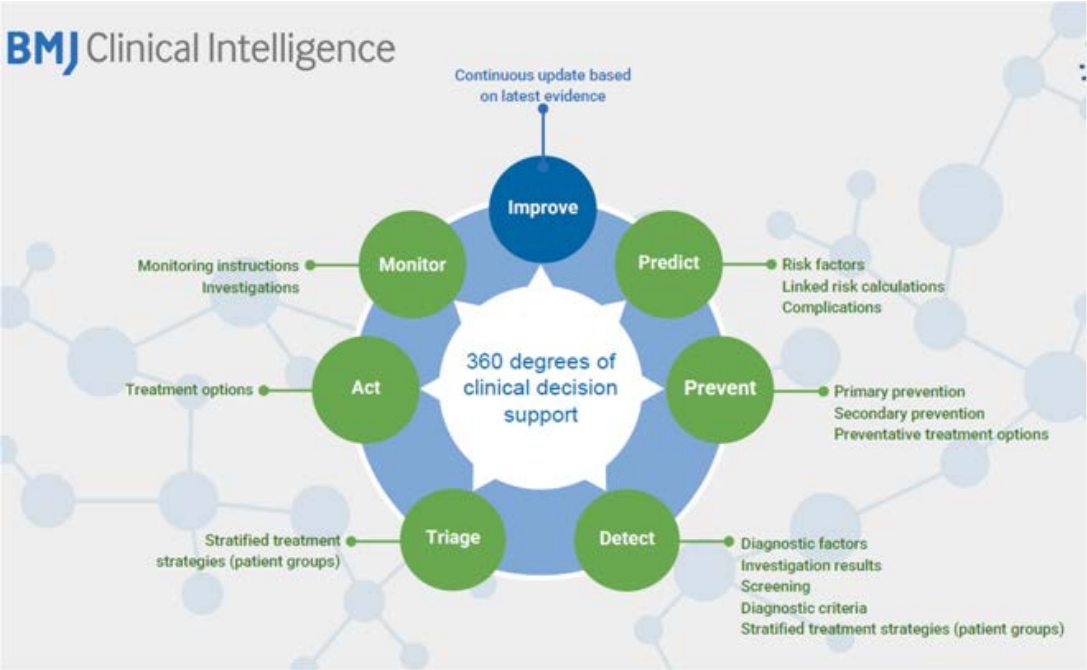
#	'883 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <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?																														
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Device education		✗ NO																														
LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO																														
Smoking cessation therapy		✗ NO																														
Streptococcus vaccination		✗ NO																														

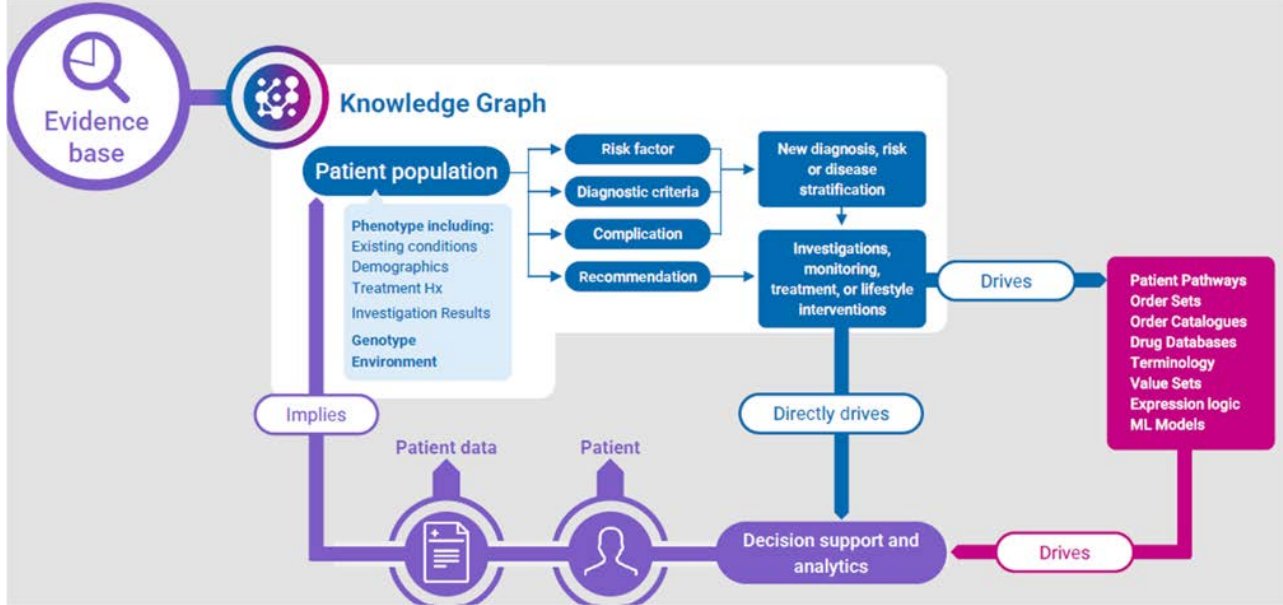
#	'883 Patent Claim	Accused Product
18	18. A method as recited in claim 1 wherein said output is output to said software application in a data structure suitable for further processing.	The output of BMJ Clinical Intelligence is output to said software application in a data structure suitable for further processing. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's White Paper states that its clinical information "is encoded and converted into computable form in a knowledge graph which drives algorithms that augment clinical decision-making." (BMJ White Paper at 6.) Output in computable form that drives algorithms is consistent with output in a data structure suitable for further processing.

#	'883 Patent Claim	Accused Product
		Updated daily using robust methodologies, our clinical information is encoded and converted into computable form in a knowledge graph which drives algorithms that augment clinical decision-making. (BMJ White Paper at 6.) BMJ's Presentation shows the knowledge graph delivering computable recommendations to downstream applications through CQL, FHIR, and SMART. (BMJ Presentation at 20.) BMJ separately states that Clinical Intelligence can be used at the point of care via web services or as a SMART on FHIR application. (BMJ White Paper at 8.) CQL, FHIR, and SMART are machine-readable interchange standards. Delivering the graph's output over those standards is delivering it in a data structure suitable for further processing by the receiving application. 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. (BMJ White Paper at 8.) 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.” Because

#	'883 Patent Claim	Accused Product
		APIs make data available to downstream software applications, the described BMJ API suggests that the data is available for further processing.  (BMJ Website: Technical Architecture.) The Healthcare IT Today Article describes that BMJ is “moving that knowledge base directly into the clinical workflow via an API.”

#	'883 Patent Claim	Accused Product
19a	19. A method as recited in claim 1 further comprising: in response to said output, receiving at said knowledge graph a new patient diagnostic factor known to be present or absent in said patient; and	In response to said output, BMJ Clinical Intelligence receives at said knowledge graph a new patient diagnostic factor known to be present or absent in said patient. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. The “360 degrees of clinical decision support” slide in the BMJ Presentation depicts a continuous cycle in which the “Detect” stage (diagnostic factors, investigation results, screening) feeds “Triage” and “Act” (treatment options), which in turn feeds “Monitor” (monitoring instructions, investigations), which feeds back into “Improve” and closes the loop back to “Predict” and “Detect.” (BMJ Presentation at 18.) The investigation and monitoring results generated at that

#	'883 Patent Claim	Accused Product
		stage are new patient diagnostic factors, now known present or absent, that drive the next iteration of the cycle, consistent with receiving a new patient diagnostic factor at the knowledge graph.  (BMJ Presentation at 18). The Presentation also shows another version of the information cycle in which “investigations” drive tests to get more “patient data” which is shown feeding back into the knowledge graph. This feedback loop demonstrates receiving at the knowledge graph, new patient diagnostic factors about a patient as claimed. (BMJ Presentation at 45.)

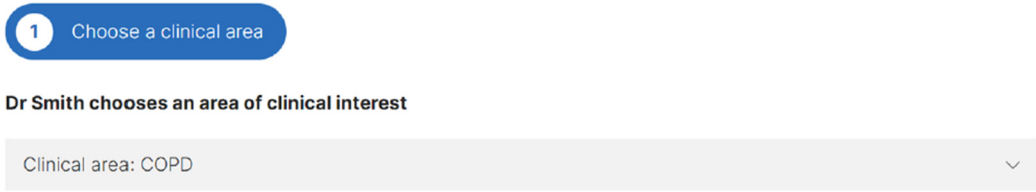
#	'883 Patent Claim	Accused Product
		 The diagram illustrates a system architecture for patient care. It begins with an 'Evidence base' (represented by a magnifying glass icon) which connects to a 'Knowledge Graph' (represented by a network icon). The 'Knowledge Graph' leads to a 'Patient population' box, which lists 'Phenotype including: Existing conditions, Demographics, Treatment Hx, Investigation Results, Genotype, Environment'. This box branches into four categories: 'Risk factor', 'Diagnostic criteria', 'Complication', and 'Recommendation'. These categories lead to 'New diagnosis, risk or disease stratification' and 'Investigations, monitoring, treatment, or lifestyle interventions'. The 'Investigations...' box leads to 'Decision support and analytics' via a 'Directly drives' connection. The 'Decision support and analytics' box also leads to 'Patient pathways, Order Sets, Order Catalogues, Drug Databases, Terminology, Value Sets, Expression logic, ML Models' via a 'Drives' connection. Additionally, 'Patient data' (represented by a document icon) and 'Patient' (represented by a person icon) feed into the 'Decision support and analytics' box. The 'Patient data' box also leads to 'Decision support and analytics' via an 'Implies' connection. The 'Decision support and analytics' box also leads to 'Patient pathways...' via a 'Drives' connection. (BMJ Presentation at 45.) In BMJ's example, the output also identifies the patients who have COPD but no record of spirometry, and the clinician then sends an alert inviting those patients to undergo spirometry. (BMJ Presentation at 40, 43.) This demonstrates patient diagnostic factors being known to be present or absent in the patient.

#	'883 Patent Claim	Accused Product																														
		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.)	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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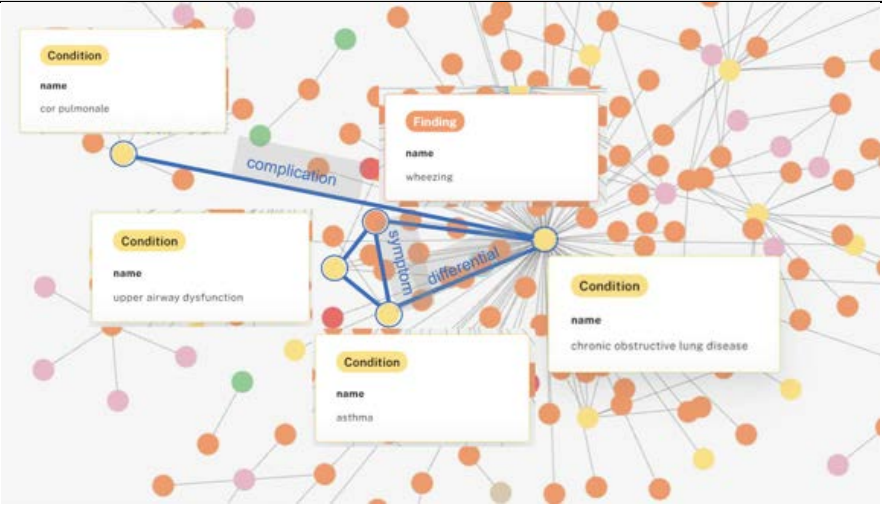
#	'883 Patent Claim	Accused Product																														
		BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</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.)	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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19b	outputting, from said knowledge graph and responsive to said new patient diagnostic factor, a new output.	BMJ Clinical Intelligence outputs, from said knowledge graph and responsive to said new patient diagnostic factor, a new output. BMJ's cycle diagram shows an output of a new patient diagnostic factor. (BMJ Presentation at 45.) A second pass through the cycle would be consistent with the claimed new output. The knowledge graph is re-queried with the newly known diagnostic factor and returns a new determination for the same patient.																														

#	'883 Patent Claim	Accused Product
		(BMJ Presentation at 45.) BMJ's White Paper describes the same process as a situation of providing output to a clinician such that "they will be in continuous learning mode as a result of receiving continuous feedback." (BMJ White Paper at 12.) The aim is that the clinician end-user has a delightful experience using a knowledge graph-based augmented clinical reasoning system and that they will be in a continuous learning mode as a result of receiving continuous feedback. (BMJ White Paper at 12.)

#	'883 Patent Claim	Accused Product
20	20. A method as recited in claim 1 further comprising: matching a	BMJ Clinical Intelligence matches a portion of said medical query to at least one of said medical condition nodes or to at least one of said finding nodes to produce said output.

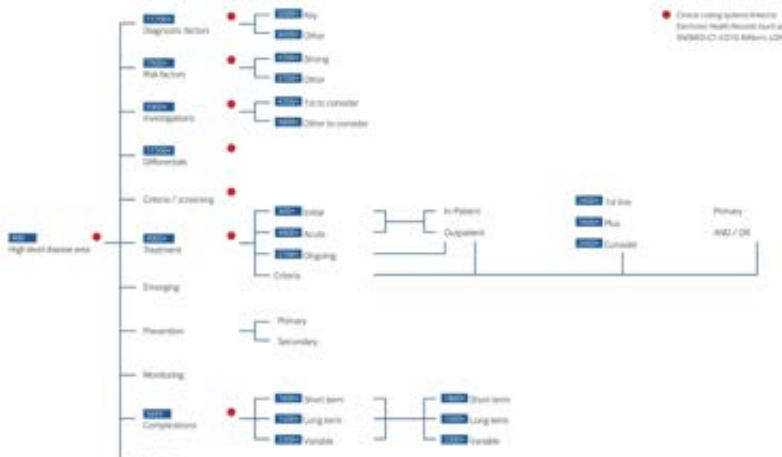
#	'883 Patent Claim	Accused Product
	portion of said medical query to at least one of said medical condition nodes or to at least one of said finding nodes to produce said output.	As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. For example, in the example provided 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.  (BMJ Presentation at 35.)

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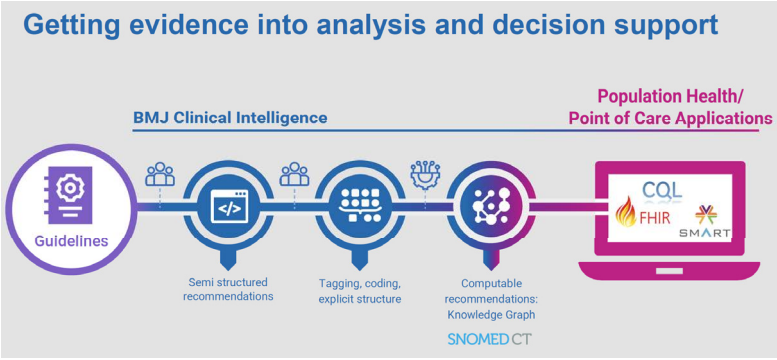
#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)

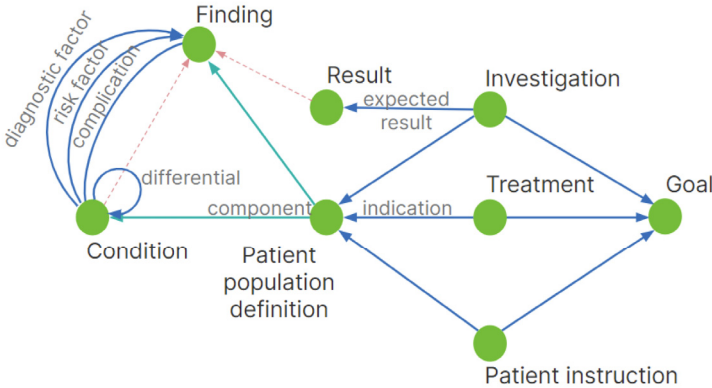
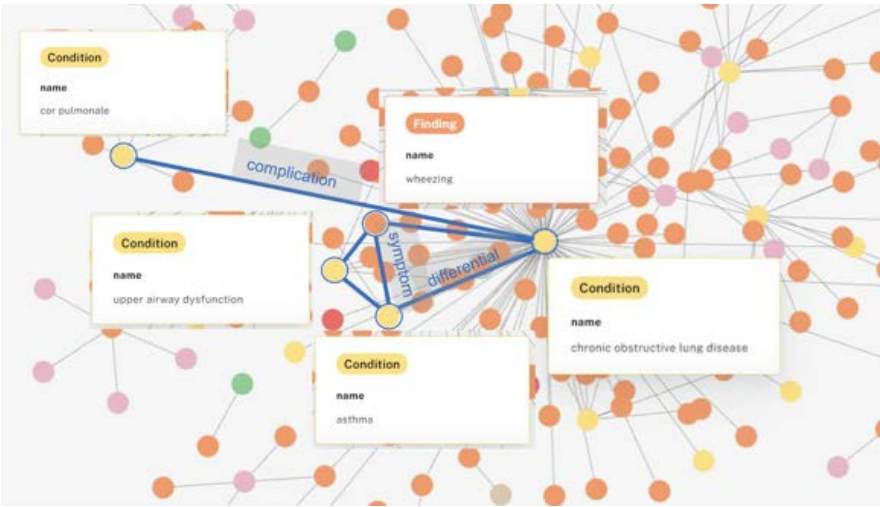
#	'883 Patent Claim	Accused Product
21	21. A method as recited in claim 1 wherein said knowledge graph includes more than twenty thousand nodes.	The knowledge graph stored by the database of BMJ Clinical Intelligence includes more than twenty thousand nodes. As discussed above, BMJ Clinical Intelligence comprises a method 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.) Those seven categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand. The figure is a floor rather than a total. (BMJ Presentation at 32.)

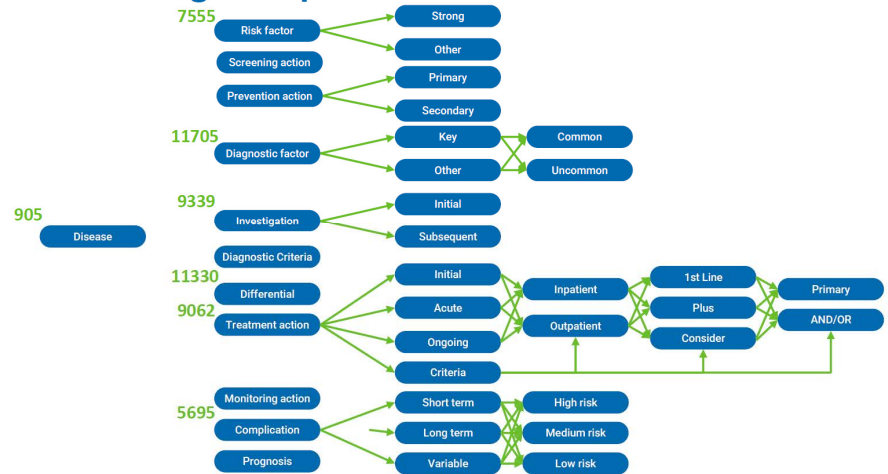
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32.) (BMJ Website: Knowledge Graph Architecture.)

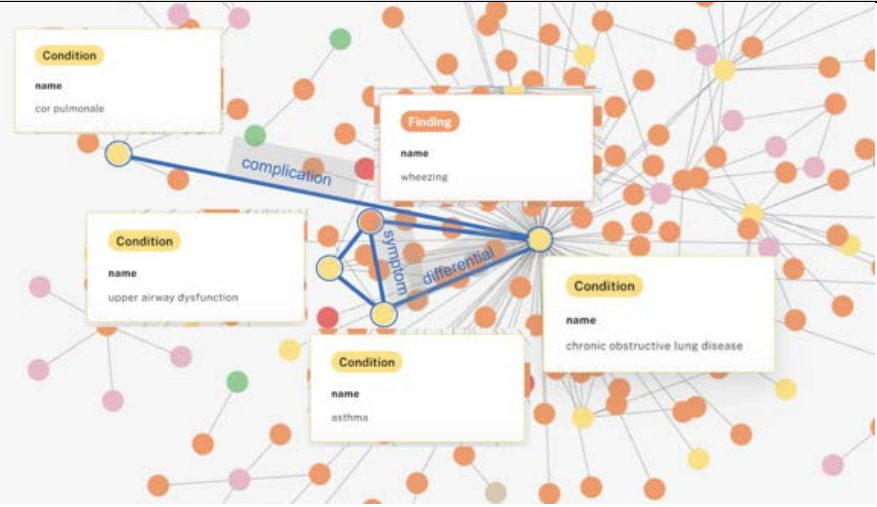
#	'883 Patent Claim	Accused Product
22	22. A method as recited in claim 1 wherein said knowledge graph includes more than one hundred thousand nodes.	On information and belief, the knowledge graph of BMJ may include more than one hundred thousand nodes. As discussed above, BMJ Clinical Intelligence comprises a method 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.  (BMJ Website: Knowledge Graph Architecture.)

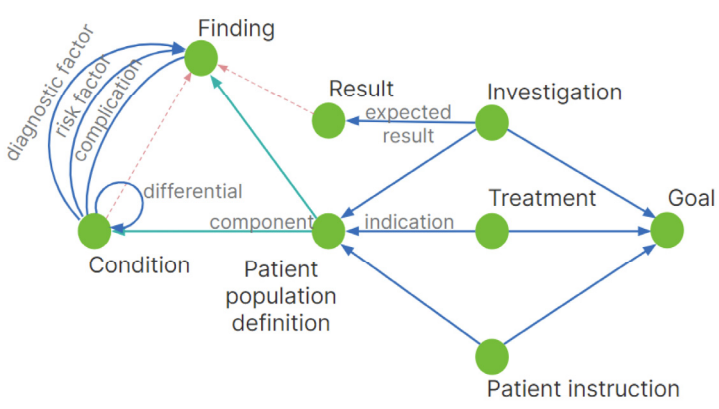
#	'883 Patent Claim	Accused Product
23pre	23. A system for providing reasoning capability to integrated medical evidence from medical evidence sources, the system comprising:	To the extent the preamble is found to be limiting, BMJ makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, for providing reasoning capability to integrated medical evidence from medical evidence sources. BMJ stated in its presentation that it uses “rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content” to create BMJ Clinical Intelligence (“CI”). (BMJ Presentation at 17.) On the cover page of the Clinical Intelligence Presentation, BMJ marketed Clinical Intelligence as a tool “delivering computable evidence at scale.” (BMJ Presentation at 1.) This indicates the BMJ has “continuously updated” its “evidence-based content” to generate “integrated medical evidence.” 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.) Delivering computable evidence at scale (BMJ Presentation at 1.) 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.) In its Clinical Intelligence White Paper, 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.” (See below, Clinical Intelligence White Paper at 7.) This indicates that BMJ

#	'883 Patent Claim	Accused Product
		“integrated medical evidence” from various “medical evidence sources” because BMJ operates different medical journals, each of which is a medical evidence source. BMJ also integrates third-party medical evidence sources such as SNOMED-CT:  (BMJ Presentation at 20.) BMJ’s Clinical Intelligence also provides “reasoning capability,” as recited in the preamble. According to its White Paper, Clinical Intelligence allows clinician end-user to use “a knowledge graph-based augmented clinical reasoning system.” The aim is that the clinician end-user has a delightful experience using a knowledge graph-based augmented clinical reasoning system and that they will be in a continuous learning mode as a result of receiving continuous feedback. (BMJ White Paper at 12.)
23a	a database that stores a knowledge graph including a plurality of nodes, which include a plurality of medical condition nodes, a	BMJ Clinical Intelligence comprises a database that stores a knowledge graph including a plurality of nodes, which include a plurality of medical condition nodes, a plurality of finding nodes, and a plurality of investigation nodes. The knowledge graph in BMJ’s Clinical Intelligence includes many different types of nodes, including “Condition” nodes, “Finding” nodes, and “Investigation” nodes.

#	'883 Patent Claim	Accused Product
	plurality of finding nodes, and a plurality of investigation nodes,	Knowledge Graph Architecture  (BMJ Presentation at 30.)  (BMJ Presentation at 31.)

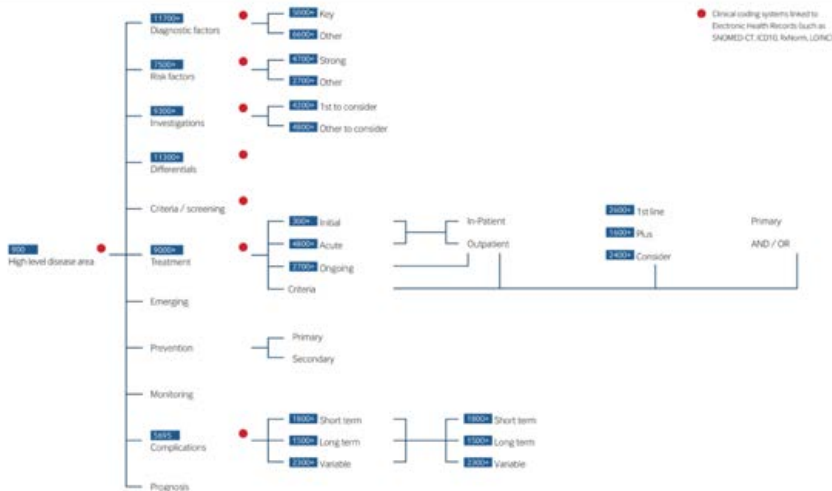
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) An article from Healthcare IT Today reporting on a discussion with Derrick Leung, Business Development Director at BMJ Group, describes that BMJ’s “knowledge graphs map the dynamic relationships between symptoms, diseases, and treatments to provide a more flexible and accurate diagnostic pathway.” (Healthcare IT Today Article.)
23b	wherein at least one of said finding nodes in said knowledge graph is traversable to a first medical condition node to indicate a finding represented by said at least one of said finding nodes is associated with a first medical condition represented by said first medical condition node,	At least one of said finding nodes in said knowledge graph for BMJ Clinical Intelligence is traversable to a first medical condition node to indicate a finding represented by said at least one of said finding nodes is associated with a first medical condition represented by said first medical condition node. The knowledge graph of Clinical Intelligence directly connects a “Finding” node of “wheezing” to a “Condition” node of “asthma” and indicates that “wheezing” is a “symptom” of “asthma.” While “wheezing” and “asthma” are used as examples of “Finding” and “Condition,” BMJ’s Clinical Intelligence uses many different findings and medical conditions that will equally meet this claim element.

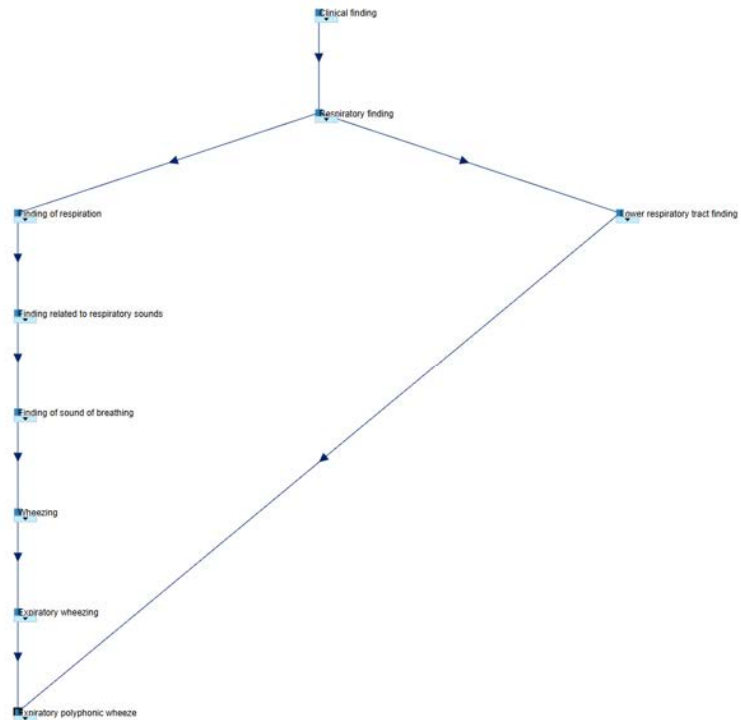
#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)
23c	wherein at least one of said investigation nodes in said knowledge graph is traversable to a second medical condition node to indicate an investigation represented by said at least one of said investigation nodes is associated with a second medical condition represented by said second medical condition node,	At least one of said investigation nodes in said knowledge graph for BMJ Clinical Intelligence is traversable to a second medical condition node to indicate an investigation represented by said at least one of said investigation nodes is associated with a second medical condition represented by said second medical condition node. The knowledge graph of Clinical Intelligence shows that an “Investigation” node is pointed to a “Patient population definition” node, which in turn points to a “Condition” node. This shows that the “Investigation” node is traversable to the “Condition” node that indicates an investigation is associated with a condition.

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
23d	wherein one or more of said nodes in said knowledge graph are extracted from a plurality of medical evidence sources and are linked to a medical terminology ontology,	One or more of said nodes in said knowledge graph for BMJ Clinical Intelligence are extracted from a plurality of medical evidence sources and are linked to a medical terminology ontology. 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.)

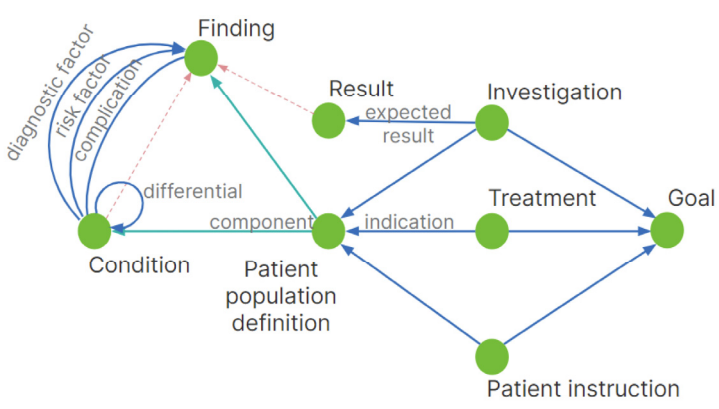
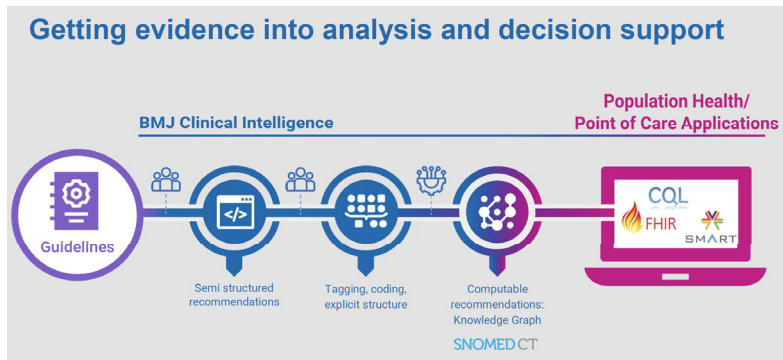
#	'883 Patent Claim	Accused Product
		The paragraph in the White Paper and the Presentation above indicate BMJ use “rigorous editorial methodology” to turn the electronic text its papers in clinical journals into “computable evidence in the form of a knowledge graph.” These are examples of BMJ extracting concepts from different medical evidence sources. Below is a specific example of how BMJ extracts an association between a finding and a condition from an electronic text to put such association into the knowledge graph of CI. In a paper (“Publication 1”) published on BMJ Open, “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 finding, is associated with “Asthma,” which is a condition. Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma In the knowledge graph of CI, BMJ has extracted such association and showed “wheezing” as a “Finding” node and “asthma” as a “Condition” node. (BMJ Presentation at 31.)

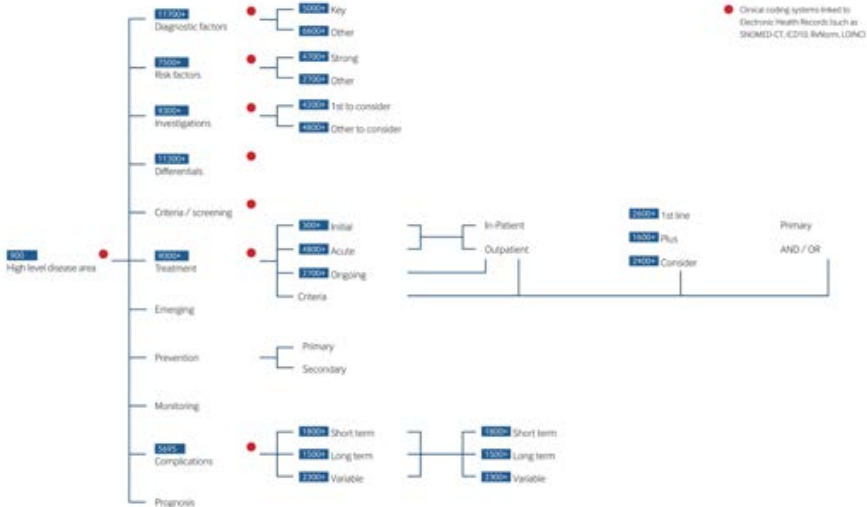
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” (examples of findings) that are associated with “disease,” which is an example of a condition. BMJ has also extracted different “investigation[s].” BMJ’s Clinical Intelligence website indicates that these nodes are linked in one or more medical terminology ontology, such as SNOMED and other ontologies. The website states the knowledge graph nodes with the dots are associated with “Clinical coding systems linked to Electronic Health Records (such as SNOMED-CT, ICD10, RxNorm, LOINC).”

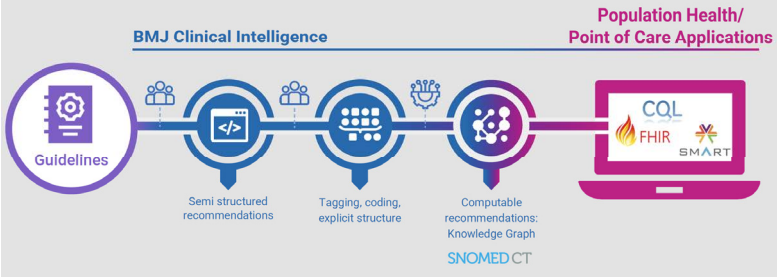
#	'883 Patent Claim	Accused Product
		 (BMJ Website: Knowledge Graph Architecture.) SNOMED shows “wheezing” in a hierarchy below. SNOMED is a medical terminology ontology.

#	'883 Patent Claim	Accused Product
		 (Website: Bioportal.) Publication 1 also shows various nodes in CI's knowledge graph are originally represented in a medical terminology ontology that is shown in Table 1 of the paper.

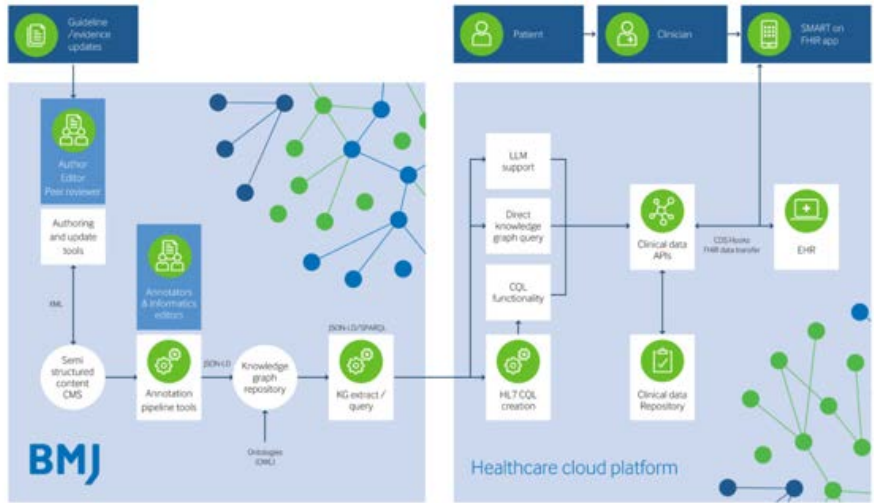
#	'883 Patent Claim	Accused Product														
		Table 1 Respiratory classification categories and the conditions included in each <table><tr><th>Classification category</th><th>Respiratory conditions included within category*</th></tr><tr><td>Upper respiratory tract infections</td><td> ▶ Cold ▶ Croup ▶ 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 ▶ 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.)	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 ▶ 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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23e	wherein said knowledge graph is configured to support said reasoning capability by allowing traversal of ancestor-descendant relationships among one or more of said medical condition nodes, said finding nodes, or said investigation nodes,	Said knowledge graph for BMJ Clinical Intelligence is configured to support said reasoning capability by allowing traversal of ancestor-descendant relationships among one or more of said medical condition nodes, said finding nodes, or said investigation nodes. The directionality illustration in the slide below from the Clinical Intelligence Presentation shows that the knowledge graph of Clinical Intelligence has reasoning capability and allows “traversal of ancestor-descendant relationships among one or more of said medical condition nodes, said finding nodes, or said investigation nodes” as recited in the claim.														

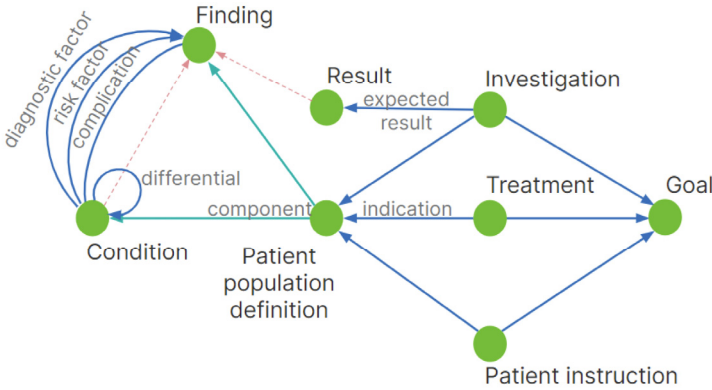
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) The Healthcare IT Today Article describes that BMJ’s “knowledge graph is not like traditional clinical decision support which is rules-based. Our knowledge graph is based on relationships.”
23f	and wherein said medical terminology ontology includes a Systemized Nomenclature of Medicine-Clinical Terms (SNOMED-CT) database, or a Logical Observation Identifiers, Names, and Codes (LOINC) database;	Said medical terminology ontology for BMJ Clinical Intelligence includes a Systemized Nomenclature of Medicine-Clinical Terms (SNOMED-CT) database, or a Logical Observation Identifiers, Names, and Codes (LOINC) database. BMJ’s presentation displays a user of SNOMED-CT as a part of the “Computable recommendations: Knowledge Graph.” 

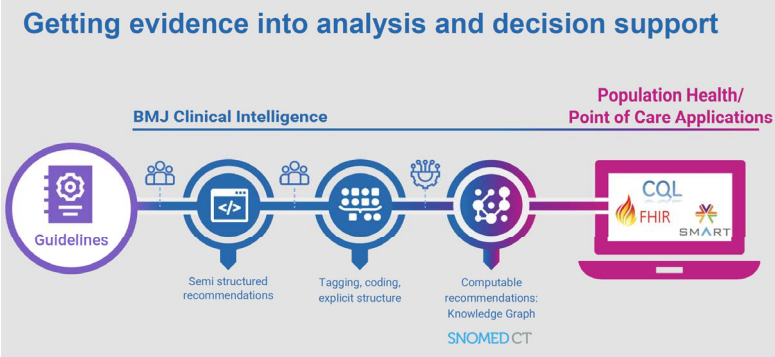
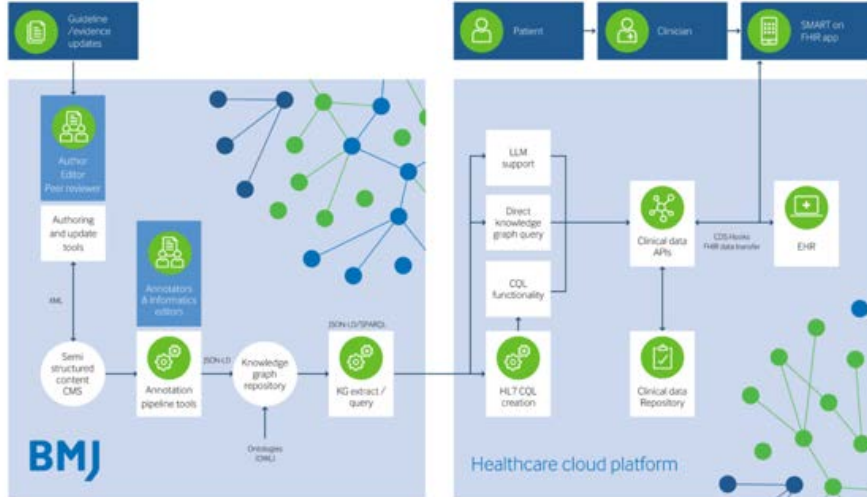
#	'883 Patent Claim	Accused Product
		(BMJ Presentation at 20.) BMJ's Clinical Intelligence website indicates that CI's knowledge graph nodes are "linked to Electronic Health Records (such as SNOMED-CT, ICD10, RxNorm, LOINC)."  (BMJ Website: Knowledge Graph Architecture.)
23g	a computer system comprising 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 a computer system comprising 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 operate CI.

#	'883 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.)

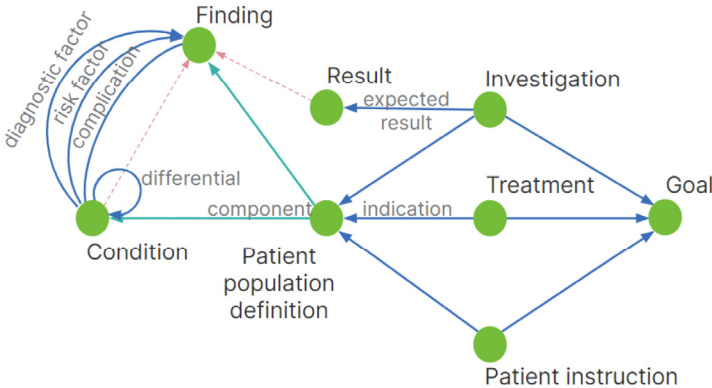
23h	receive, via an application programming interface (API), a medical query from a software application for querying said knowledge graph;	BMJ Clinical Intelligence receives, via an application programming interface (API), a medical query from a software application for querying said knowledge graph. The illustration below includes evidence that Clinical Intelligence is intended to be used to communicate with other software applications such as CQL, FHIR, and SMART. (BMJ Presentation at 20.) Hence, Clinical Intelligence includes one or more APIs for receiving a medical query from a software application to query CI's knowledge graph. The diagram, titled "Getting evidence into analysis and decision support", illustrates a workflow for BMJ Clinical Intelligence. It starts with a purple circle labeled "Guidelines" containing a gear icon. This is connected by a blue line to a series of three blue circles. The first blue circle is labeled "Semi structured recommendations" and contains a code icon. The second blue circle is labeled "Tagging, coding, explicit structure" and contains a grid icon. The third blue circle is labeled "Computable recommendations: Knowledge Graph" and contains a network icon; below it is the "SNOMED CT" logo. This sequence of blue circles is connected to a pink circle labeled "Population Health/ Point of Care Applications" which contains a laptop icon. The laptop screen displays logos for "CQL", "FHIR", and "SMART". Above the flow, the text "BMJ Clinical Intelligence" is written in blue, and "Population Health/ Point of Care Applications" is written in pink. (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."
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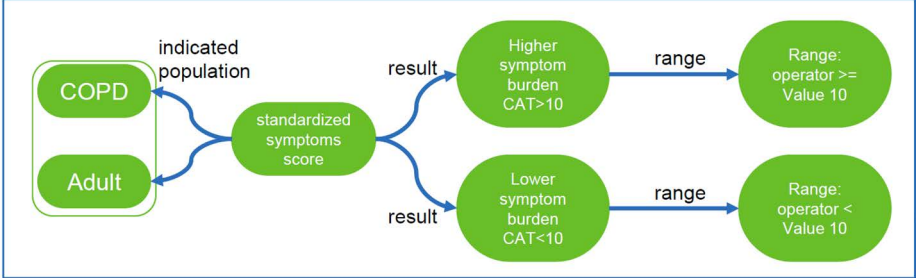
#	'883 Patent Claim	Accused Product
		 (BMJ Website: Technical Architecture.) The Healthcare IT Today Article describes that BMJ is “moving that knowledge base directly into the clinical workflow via an API.”
23i	identify, using said reasoning capability, a set of ancestor-descendant relationships of said knowledge graph that are relevant to said medical query, wherein said reasoning capability including traversing said knowledge graph to identify one or more of said medical condition nodes, said finding nodes, or said investigation nodes that	BMJ Clinical Intelligence identifies, using said reasoning capability, a set of ancestor-descendant relationships of said knowledge graph that are relevant to said medical query, wherein said reasoning capability including traversing said knowledge graph to identify one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query. Based on the query, BMJ traverses the knowledge graph to identify relevant nodes, as illustrated in the slide below.

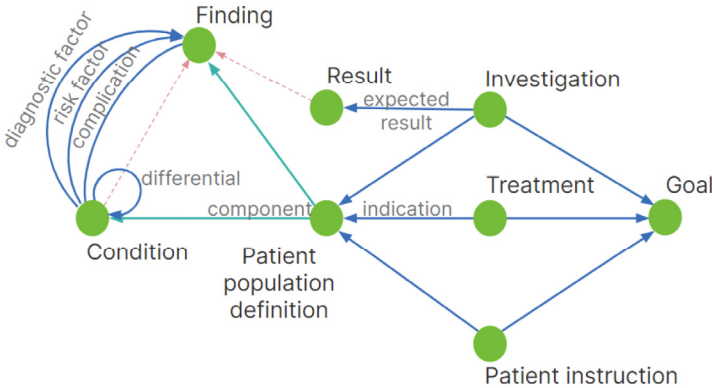
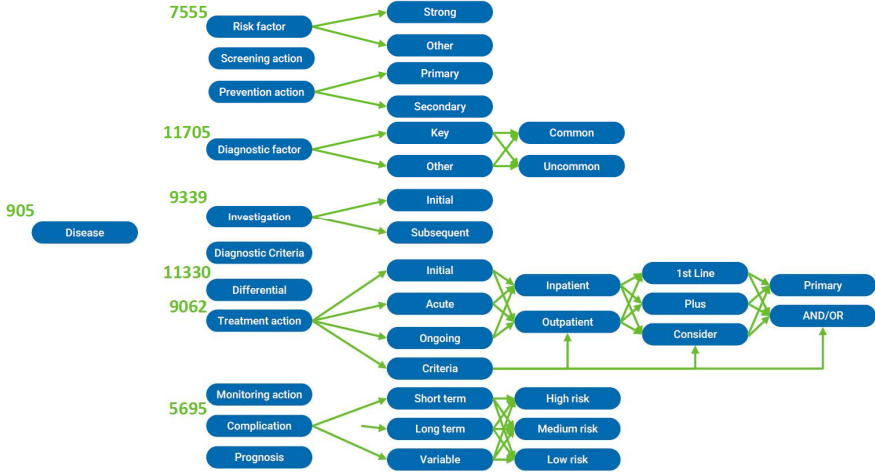
#	'883 Patent Claim	Accused Product
	are relevant to said medical query; and	Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's White Paper also shows that Clinical Intelligence allows a traversal of the knowledge graph to "identify one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query" as recited in the claim. For example, the White Paper explains that the knowledge graph allows us to "look across the graph for relationships between diseases and other diseases, between diseases and findings, [and] between findings and other findings" consistent with traversing the knowledge graph to identify related conditions or findings based on the links. (BMJ White Paper at 9.) Knowledge graphs allow us to reason in different ways as compared to simple rule-based approaches. A knowledge graph allows us to use semantic reasoning and look across the graph for relationships between diseases and other diseases, between diseases and findings, between findings and other findings, between findings and drugs, and even between drugs and diseases. (BMJ White Paper at 9.) The Healthcare IT Today Article additionally describes that BMJ's "knowledge graph is not like traditional clinical decision support which is rules-based. Our knowledge graph is based on relationships." (Healthcare IT Today Article)
23j	output, responsive to said medical query, an	BMJ Clinical Intelligence outputs, responsive to said medical query, an output to said software application.

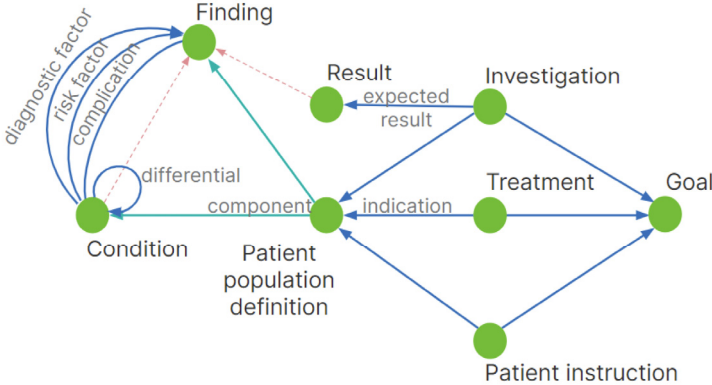
#	'883 Patent Claim	Accused Product
	output to said software application,	BMJ has established one or more APIs for receiving medical queries from a software application to query CI's knowledge graph. Clinical Intelligence can provide a response to the medical query through the API endpoints. Getting evidence into analysis and decision support  (BMJ Presentation at 20.) BMJ's Clinical Intelligence website "technical architecture" page also 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.)

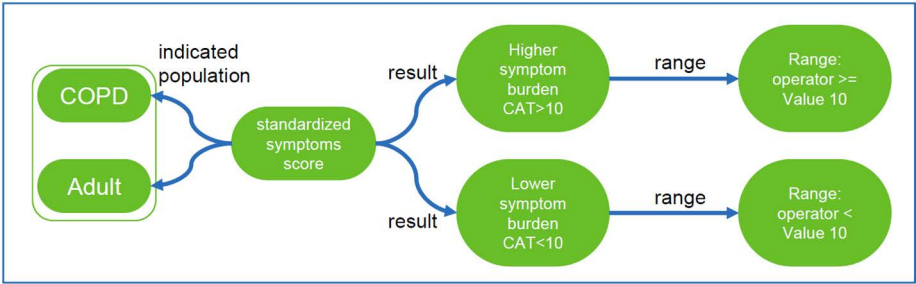
#	'883 Patent Claim	Accused Product
23k	wherein said output includes data related to one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query in order for said software application to generate a medical determination.	Said output from BMJ Clinical Intelligence includes data related to one or more of said medical condition nodes, said finding nodes, or said investigation nodes that are relevant to said medical query in order for said software application to generate a medical determination. BMJ has indicated that the use cases of Clinical Intelligence include “directing care,” “support next best clinical action.” (BMJ Presentation at 21.) This shows that the knowledge graph enables software to generate “a healthcare determination,” as recited in the claim. 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.)

#	'883 Patent Claim	Accused Product
24	24. A system as recited in claim 23, wherein each of said investigation nodes is linked to a corresponding result node holding a result of said each investigation node, each of said corresponding result nodes being linked to said at least one of said medical condition nodes to which said each investigation node is linked.	The knowledge graph stored by the database of BMJ Clinical Intelligence includes investigation nodes that are linked to a corresponding result node holding a result of each investigation, and each of the corresponding result nodes is linked to at least one of the medical condition nodes to which each investigation node is linked. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. The BMJ Presentation shows a “Result” node linked to the “Investigation” node in the knowledge graph architecture and labels the edge joining the two “expected result.” (BMJ Presentation at 30.) This labeled link is consistent with an investigation node being linked to a corresponding result node as claimed. Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ’s example pictured below further shows the knowledge graph structure populated with example content. The “standardized symptoms score” investigation node is linked to two “result” nodes “Higher symptom burden CAT>10” and “Lower symptom burden CAT<10.” That same investigation node is joined by an “indicated population” edge to the “COPD” condition node. (BMJ Presentation at 37, 38.) Because the investigation node and its two result nodes occupy a common path to the COPD condition node, each result node is linked to the same medical

#	'883 Patent Claim	Accused Product
		condition node to which the investigation node is linked. This is consistent with at least one result node being linked to medical condition nodes.  <pre> graph LR subgraph IndicatedPopulation [indicated population] COPD Adult end IndicatedPopulation --> SSS[standardized symptoms score] SSS -- result --> HSB[Higher symptom burden CAT>10] SSS -- result --> LSB[Lower symptom burden CAT<10] HSB -- range --> R1[Range: operator >= Value 10] LSB -- range --> R2[Range: operator < Value 10] </pre> (BMJ Presentation at 37.)
#	'883 Patent Claim	Accused Product
25	25. A system as recited in claim 23, wherein said finding nodes are diagnostic factor nodes.	In the knowledge graph stored by the database of BMJ Clinical Intelligence, said finding nodes are diagnostic factor nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. In BMJ's knowledge graph diagram, the edge running from the "Condition" node to the "Finding" node is labeled "diagnostic factor." (BMJ Presentation at 30.) BMJ's architecture slide also enumerates "Diagnostic factor" as an available node category for the stored knowledge graph and reports 11,705 such nodes. (BMJ Presentation at 32.) These architecture notes indicate that "finding" nodes can be a type of "diagnostic factor" node in the BMJ knowledge graph.

#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure also illustrates that BMJ has extracted many “diagnostic factors” (examples of findings).

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26	26. A system as recited in claim 23, wherein said each investigation node does not include information specific to a medical condition associated with one of said medical condition nodes to which said each investigation node is traversable.	In BMJ Clinical Intelligence, each investigation node does not include information specific to a medical condition associated with one of the medical condition nodes to which the investigation node is traversable. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. 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 investigation separate from specific information about the medical condition details. (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's example in the presentation shows a similar arrangement. The investigation node is the generic instrument "standardized symptoms score" and the condition-specific content, namely the CAT thresholds and the operator and value ranges, are stored on separate result and range nodes downstream of the investigation node. (BMJ Presentation at 37, 38.) The investigation node therefore does not itself include information specific to COPD, or to any other condition to which it is traversable, as claimed.

#	'883 Patent Claim	Accused Product
		 (BMJ Presentation at 37.)

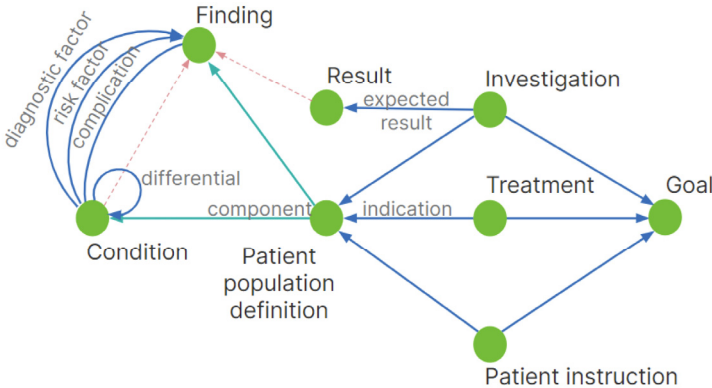
#	'883 Patent Claim	Accused Product
27	27. A system as recited in claim 23, wherein each of said investigation nodes is disambiguated across said plurality of medical condition nodes.	In the knowledge graph stored by the database of BMJ Clinical Intelligence, each of said investigation nodes is disambiguated across said plurality of medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. BMJ states that the knowledge graph approach “allows us to create a single model for a whole domain of practice,” as distinguished from condition-specific rule sets. (BMJ White Paper at 9.) The single model can in this way provide clarity (i.e., disambiguation) for how an investigation may relate to a plurality of medical conditions through the knowledge graph links. determine if they are all working appropriately in synchrony. The knowledge graph approach as opposed to the simple rule-based approach allows us to create a single model for a whole domain of practice be it in clinical medicine or population health. (BMJ White Paper at 9.) A single domain-wide model stored in one database requires that an investigation appearing in the pathway of more than one condition be represented once and resolved unambiguously wherever it is reached. BMJ Clinical Intelligence does this by routing every investigation to its conditions through patient population definition nodes rather than storing a separate investigation node per condition. (BMJ Presentation at 30.) The single “standardized symptoms score” node serving the indicated population of COPD and Adult is an instance of that design. (BMJ Presentation at 37.)

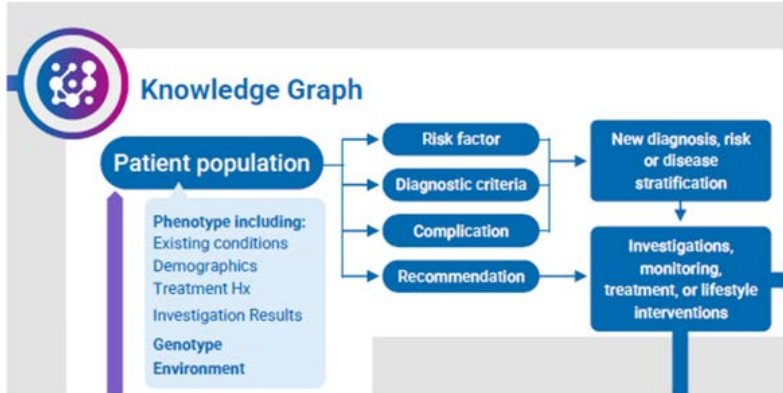
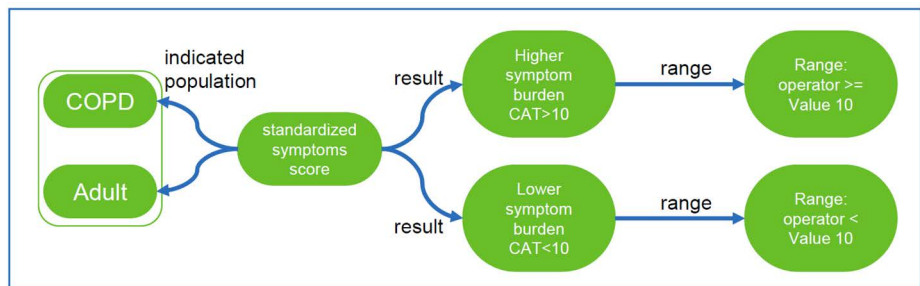
#	'883 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 30.) (BMJ Presentation at 37.)

#	'883 Patent Claim	Accused Product
28	28. A system as recited in claim 23, wherein each of said investigation nodes is independent of said at least one of said medical condition nodes to which said each	In the knowledge graph stored by the database of BMJ Clinical Intelligence, each of the investigation nodes is independent of the at least one of the medical condition nodes to which each investigation node is traversable. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. BMJ's architecture includes no direct edge between the "Investigation" node and the "Condition" node. The investigation reaches the condition only by traversing the intervening "Patient

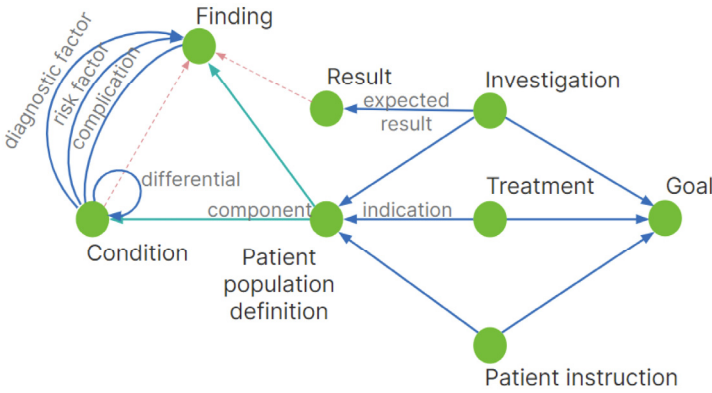
#	'883 Patent Claim	Accused Product
	investigation node is traversable.	population definition” node. (BMJ Presentation at 30.) That separation demonstrates that the investigation nodes and their stored data are independent from the condition nodes and their data. That is, the investigation node’s definition in the database does not depend on any particular condition because the condition is reached only by traversal. Knowledge Graph Architecture (BMJ Presentation at 30.) In the White Paper, BMJ explains why it considers independence of the condition nodes from the investigation entries important: “rules necessarily take a single disease perspective which will not work for patients with multimorbidity.” (BMJ White Paper at 5.) BMJ offers the knowledge graph as the alternative that avoids that coupling. There can be rule conflict and resultant confusion when multiple rules are operating that do not agree with each other. And rules necessarily take a single disease perspective which will not work for patients with multimorbidity. This is a big problem when up to one-third of the adult population has multimorbidity. Put simply, the clinical workforce is faced with an aging population with a growing number of complex interrelated problems. (BMJ White Paper at 5.)

#	'883 Patent Claim	Accused Product
29	29. A system as recited in claim 23, wherein	The knowledge graph stored by the database of BMJ Clinical Intelligence further includes, for each of said investigation nodes, a data structure different from said each investigation node that is

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	said knowledge graph further includes for each of said investigation nodes, a data structure different from said each investigation node that is traversable to both said each investigation node and said at least one of said medical condition nodes to which said each investigation node is traversable, said data structure including attributes pertaining to said at least one of said medical condition nodes to which said each investigation node is traversable.	traversable to both said each investigation node and said at least one of said medical condition nodes to which said each investigation node is traversable, said data structure including attributes pertaining to said at least one of said medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. BMJ's "Knowledge Graph Architecture" diagram shows a "Patient population definition" node positioned between the "Investigation" node and the "Condition" node, with the edge to the Condition node labeled "component." (BMJ Presentation at 30.) The Patient population definition node is consistent with the claimed data structure. It is a distinct node stored in the database, different from the investigation node, and it is traversable both to the investigation node and to the condition node. Knowledge Graph Architecture  (BMJ Presentation at 30.) BMJ's patient centred cycle slide identifies the attributes of a patient population node, describing the patient population by its "Phenotype including: Existing conditions, Demographics, Treatment Hx, Investigation Results, Genotype, Environment." (BMJ Presentation at 45.) Those attributes pertain to the medical condition node to which the investigation node is traversable. BMJ's example shows the same structure populated, with the "standardized symptoms score" investigation node reaching an indicated population comprising COPD and Adult through an "indicated population" edge. (BMJ Presentation at 37.)

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		 (BMJ Presentation at 45.)  (BMJ Presentation at 37.)

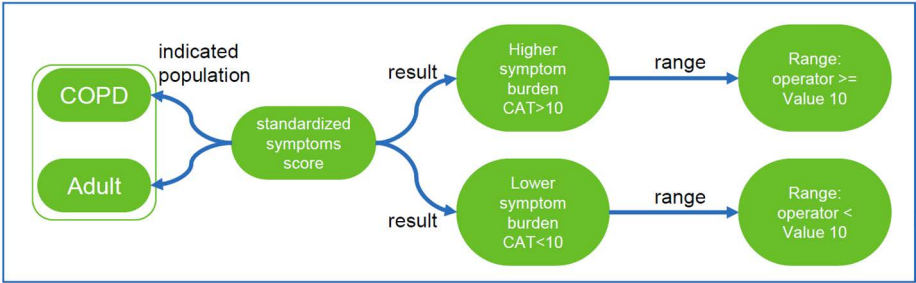
#	'883 Patent Claim	Accused Product
30a	30. A system as recited in claim 23, wherein at least one of said investigation nodes is traversable to at least two of said medical condition nodes and	In the knowledge graph stored by the database of BMJ Clinical Intelligence, at least one of said investigation nodes is traversable to at least two of said medical condition nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. BMJ describes the knowledge graph as “a comprehensive domain model that is not single disease-specific or single drug-specific.” (BMJ White Paper at 12.) BMJ further explains that the graph permits it to take a disease and find all of the neighboring diseases and comorbidities to which that disease is connected. (BMJ White Paper at 8.) This indicates that a disease (i.e., condition node)

#	'883 Patent Claim	Accused Product
		will be linked to multiple other nodes such as multiple investigation nodes which may lead to that condition. Traditional guidelines typically cover the diagnosis and management of a single disease. Knowledge graphs are more like a whole encyclopedia – a comprehensive domain model that is not single disease-specific or single drug-specific. Knowledge graphs allow us to model an entire domain. We can fuse knowledge graphs together from different domains and then they (BMJ White Paper at 12.) 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.) BMJ allows investigation nodes to route to multiple condition nodes by routing investigations to conditions through Patient population definition nodes, which are in turn reached from multiple conditions. (BMJ Presentation at 30.) Knowledge Graph Architecture  (BMJ Presentation at 30.)
30b	wherein said at least one of said investigation	Said at least one of said investigation nodes does not include information specific to medical conditions associated with said at least two of said medical condition nodes.

#	'883 Patent Claim	Accused Product
	nodes does not include information specific to medical conditions associated with said at least two of said medical condition nodes.	The investigation node in the BMJ knowledge graph architecture 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 a clinical investigation does not include information specific to the medical condition, but could link to many conditions. (BMJ Presentation at 30.) Knowledge Graph Architecture (BMJ Presentation at 30.)

#	'883 Patent Claim	Accused Product
31	31. A system as recited in claim 23, wherein said knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, a ranking value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node.	On information and belief, the BMJ Clinical Intelligence knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, a ranking value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. For example, traversing BMJ’s graph database from one diagnostic factor (which could be an investigation) to a medical condition produces a rank that may be different from traversing from that same diagnostic factor to another medical condition. BMJ’s case study with Sayvant illustrates

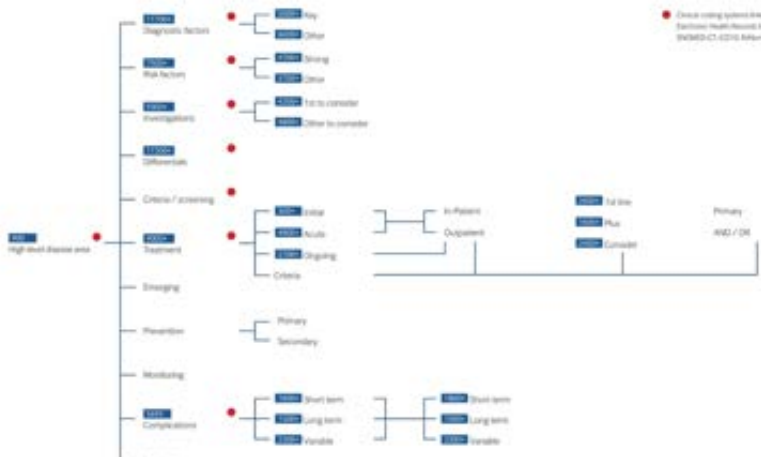
#	'883 Patent Claim	Accused Product
	value indicating how likely it is that an investigation represented by said each investigation node is indicative of a medical condition represented by said each medical condition node.	this by showing that the same patient finding profile (chest pain, non-specific 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.)

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32	32. A system as recited in claim 23, wherein said knowledge graph further includes on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, at least one condition-dependent attribute of a medical condition represented by said each medical condition node.	The knowledge graph stored by the database of BMJ Clinical Intelligence further includes, on a path between each medical condition node and each of said investigation nodes to which said each medical condition node is traversable, at least one condition-dependent attribute of a medical condition represented by said each medical condition node. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. The example shown in the BMJ Presentation demonstrates condition-dependent attributes on the path between a medical condition node and an investigation node. The “standardized symptoms score” investigation node is joined to its indicated population by an “indicated population” edge, and the score bands and operator-and-value ranges downstream of that node are specific to the COPD population. (BMJ Presentation at 37.)  (BMJ Presentation at 37.) The CAT threshold of 10 shows the threshold BMJ applies for COPD, sourced to the GOLD COPD guideline that BMJ links to the same subgraph by an “evidence” edge. (BMJ Presentation at 38.) The CAT > 10 threshold is therefore a condition-dependent attribute of the condition represented by the COPD node, stored on the path between the COPD condition node and the investigation node.

#	'883 Patent Claim	Accused Product
		Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease: 2023 report [https://goldcopd.org/2023-gold-report-2/] ☐ Select All ☐ Select None ☒ CAT score >10 (BMJ Presentation at 38.)

#	'883 Patent Claim	Accused Product
33	33. A system as recited in claim 23 wherein said knowledge graph includes more than twenty thousand nodes.	The knowledge graph stored by the database of BMJ Clinical Intelligence includes more than twenty thousand nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. 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.) Those seven categories alone total 55,591 nodes, which is nearly three times the claimed twenty thousand. The figure is a floor rather than a total. (BMJ Presentation at 32.)

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

#	'883 Patent Claim	Accused Product
34	34. A system as recited in claim 23 wherein said knowledge graph includes more than one hundred thousand nodes.	On information and belief, the knowledge graph of BMJ may include more than one hundred thousand nodes. As discussed above, BMJ Clinical Intelligence comprises a system as recited in claim 23. 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.  (BMJ Website: Knowledge Graph Architecture.)