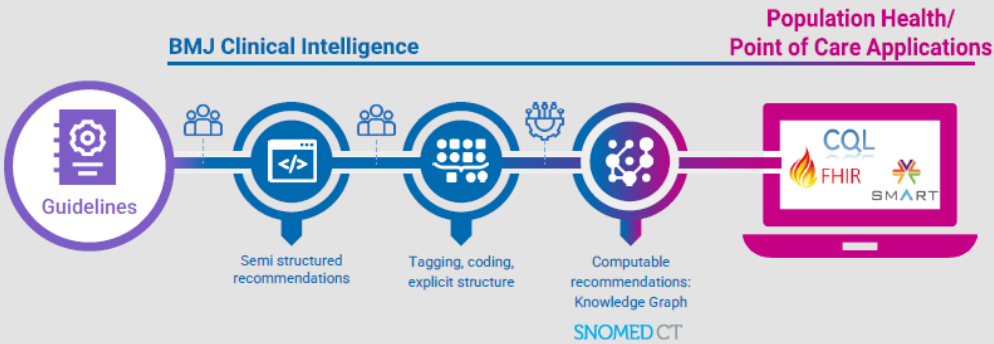


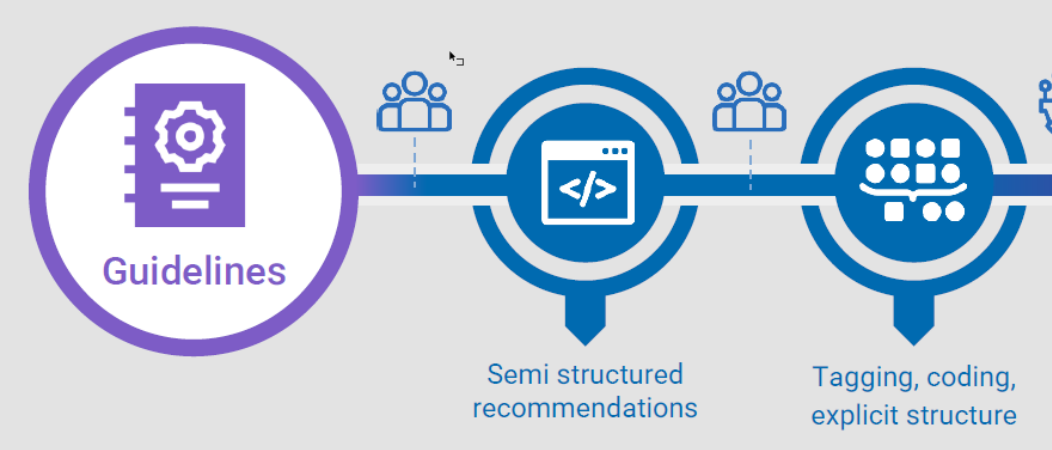
EXHIBIT O

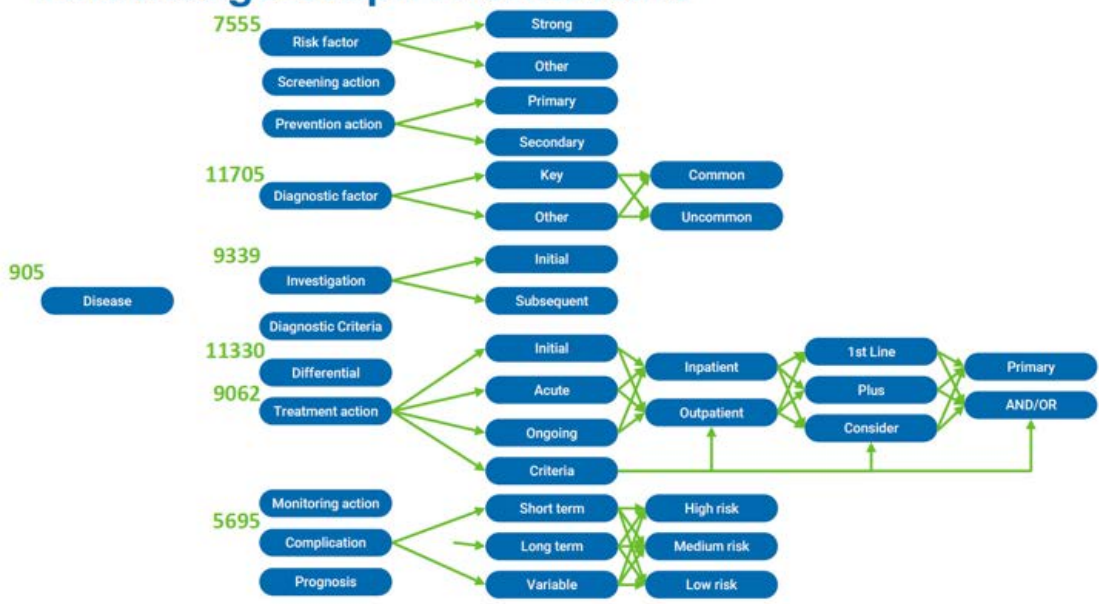
EXHIBIT O - Claim Chart for U.S. Patent No. 11,869,674

#	'674 Patent Claim	Accused Product
1pre	1. A method of translating medical evidence into computational elements, said method comprising:	To the extent the preamble is found to be limiting, BJM 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 translating medical evidence into computational elements. “BMJ Clinical Intelligence is an evidence-based and continuously updated resource covering a range of medical specialties. Its structured representation of knowledge allows for a comprehensive understanding of relationships between medical entities, fostering better clinical decision-making.” (2024 - BMJ Why BMJ Knowledge Graph paper - BMJ_CI_White-Paper_WEB-1 (“BMJ White Paper”) at 3.) “The BMJ Clinical Intelligence approach involves knowledge engineering at scale, ensuring the translation of clinical guidelines into computable evidence.” (BMJ White Paper at 3.) “BMJ Clinical Intelligence is the knowledge graph designed by BMJ. It is a set of continually updated, evidence-based, and structured knowledge assets.” (BMJ White Paper at 6.) “The BMJ Clinical Intelligence knowledge graph is built upon knowledge assets that are evidence based and have a clear provenance that cites the source materials.” (BMJ White Paper at 7.) “What is BMJ Clinical Intelligence? Computable evidence in the form of a knowledge graph.” (2024 - BMJ Clinical Intelligence Presentation 7.4.24 (“BMJ Presentation”) at 17.)
1a	inputting a portion of electronic text pertaining to a medical condition from a medical evidence source;	BMJ Clinical Intelligence inputs a portion of electronic text pertaining to a medical condition from a medical evidence source. “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 7.) “Our clinical information” is a medical evidence source because BMJ is a journal and database that collect various medical evidence.

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

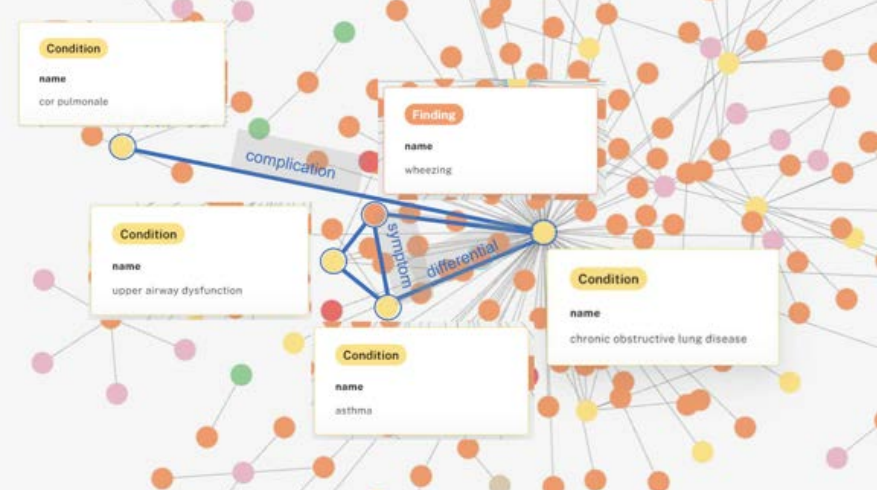
#	'674 Patent Claim	Accused Product
		“Publication 1” is entitled, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” which discussed various respiratory and non respiratory conditions. (Publication 1 at 3.) “Publication 2” is entitled, “Association between rhinovirus wheezing illness and the development of childhood asthma: a meta-analysis,” which discussed rhinovirus wheezing illness and asthma. (Publication 2 at 1.) “Publication 3” is entitled, “Working in a cold environment, feeling cold at work and chronic pain: a cross-sectional analysis of the Tromsø Study,” which discussed cold and chronic pain. (Publication 3 at 1.)
1b	processing said electronic text using natural language processing (NLP) to produce a plurality of diagnostic factors indicative of said medical condition;	On information and belief, BMJ Clinical Intelligence processes said electronic text using natural language processing (NLP) to produce a plurality of diagnostic factors indicative of said medical condition. In the section related to “Data Collection” (BMJ Presentation at 24), BMJ’s Presentation shows that BMJ Computable Intelligence “can prepopulate from patient’s record.” (BMJ Presentation at 27.)

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 29.) The extractions of “Semi structured recommendations” and “tagging, coding, explicit structure” are based on natural language processing techniques. Turning “guidelines” into “semi-structured recommendations” is an example of the use of NLP.

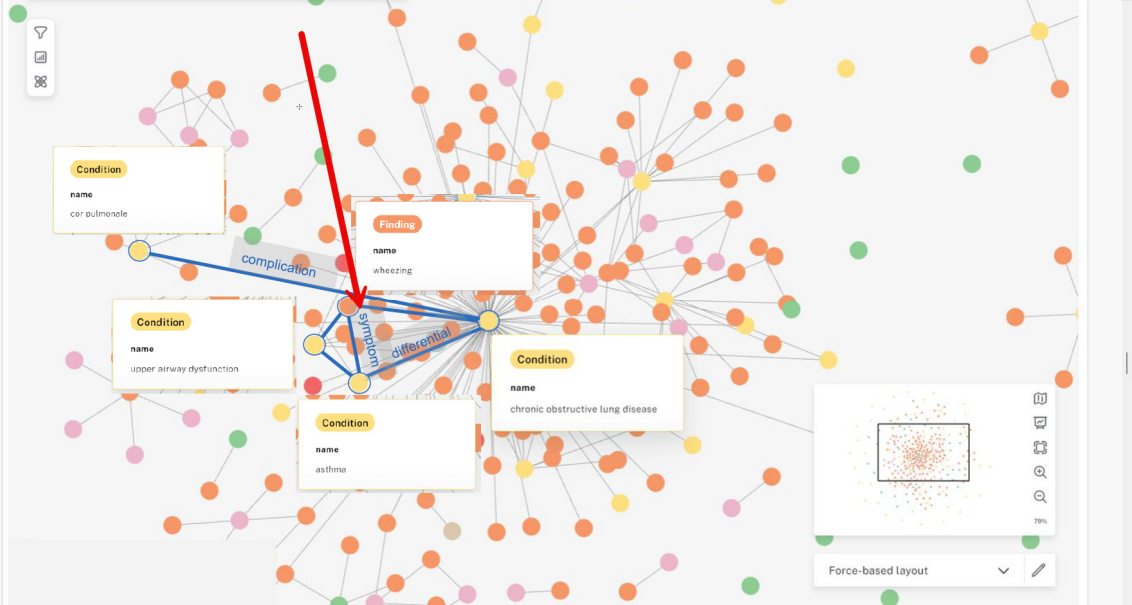
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure illustrates that BMJ extracts “diagnostic factors” from its medical evidence sources. “The knowledge graph can also assess the output of large language models to validity 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.” (BMJ White Paper at 11.) These statements show that BMJ deploys various NLP techniques. Further evidence that BMJ Clinical Intelligence uses natural language processing appears on the “Knowledge graph architecture” page of the BMJ Clinical Intelligence website, from which it is apparent that the knowledge graph has tens of thousands of terms coded to SNOMED, ICD, RxNorm, and LOINC. (BMJ Website: Knowledge Graph Architecture.)

#	'674 Patent Claim	Accused Product
		In the letter from BMJ's counsel to Evidium's counsel dated January 24, 2025, BMJ admitted, "BMJ has invested significant sums over the last 15 years in making its Best Practice content semi-structured." Making content into semi-structured data is another example of the use of NLP. Additionally, BMJ hires editors that use common NLP tools to process text. BMJ job postings for Technical Editor list responsibilities that include "Formatting text using Kriya and eXtyle editing packages." <i>See, e.g.,</i> https://biotechnologyjobs.co.uk/view-job/technical-editor-fee74f32a21f. The tool eXtyle utilizes various NLP techniques, many of which are examples discussed in the '674 patent. In a job posting dated July 1, 2024, BMJ described the responsibilities included "Formatting text using xml editing packages (currently eXtyle)." 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 eXtyle) • Handling data-heavy illustrations and tables • Liaising with academic authors BMJ Group Job Overview, available at https://jobsearch.bmj.com/jobs/job/Technical-Editor-The-BMJ/788 (last visited September 2, 2026) ("BMJ Website: Job Overview"). By BMJ's own words, as shown in materials below, BMJ uses "rigorous editorial methodology" to turn its papers in clinical journals into "computable evidence in the form of a knowledge graph." (BMJ Presentation at 17.)

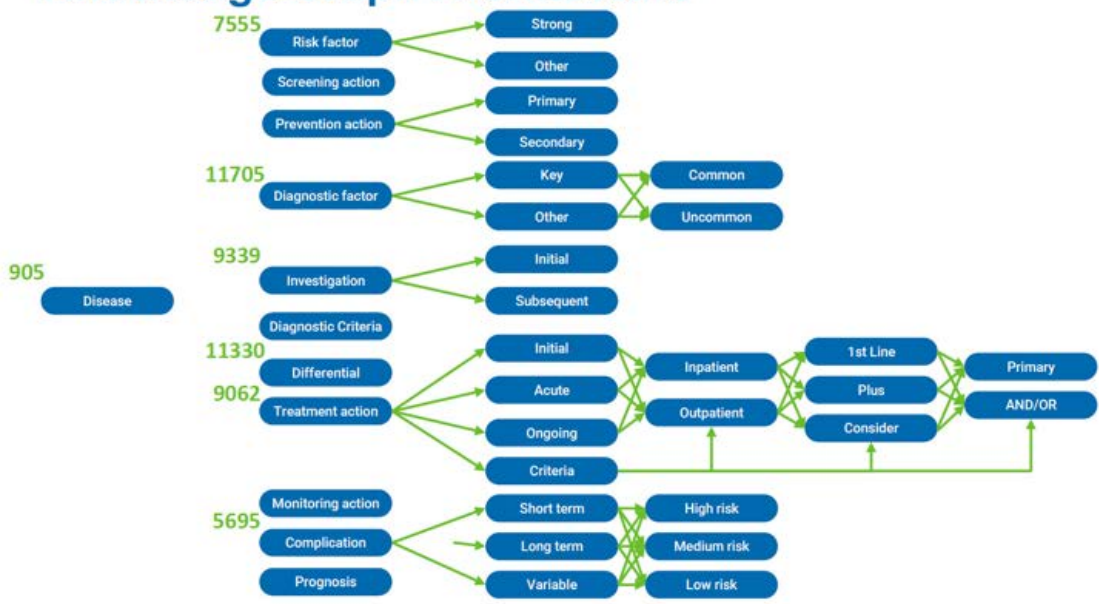
#	'674 Patent Claim	Accused Product
		BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been 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.) 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.) What is BMJ Clinical Intelligence? • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content (BMJ Presentation at 17.) The knowledge graph in CI includes various clinical concepts indicative of a medical condition. For example, using wheezing as an example, the knowledge graph below shows various clinical concepts, such as conditions of “upper airway dysfunction,” “chronic obstructive lung disease” and the finding of “wheezing” that are indicative of the medical condition “asthma.”

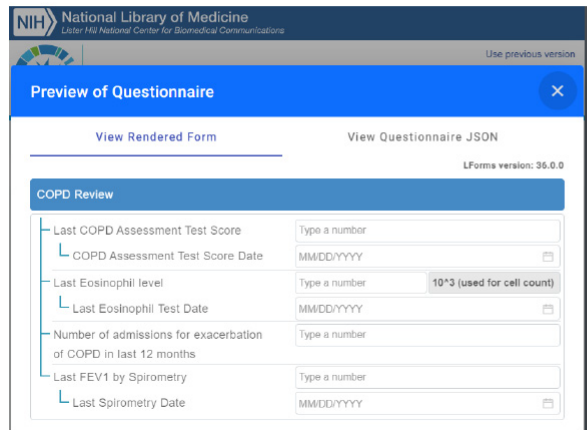
#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) BMJ is in the business of managing medical journals and providing structured data extracted from these journals. The very process of creating databases from medical journal content, which is presented in natural language, inherently involves the use of NLP. In short, BMJ's core business involves processing natural language (medical journals).
1c	displaying said diagnostic factors on a computing device to a person;	BMJ Clinical Intelligence displays said diagnostic factors on a computing device to a person.

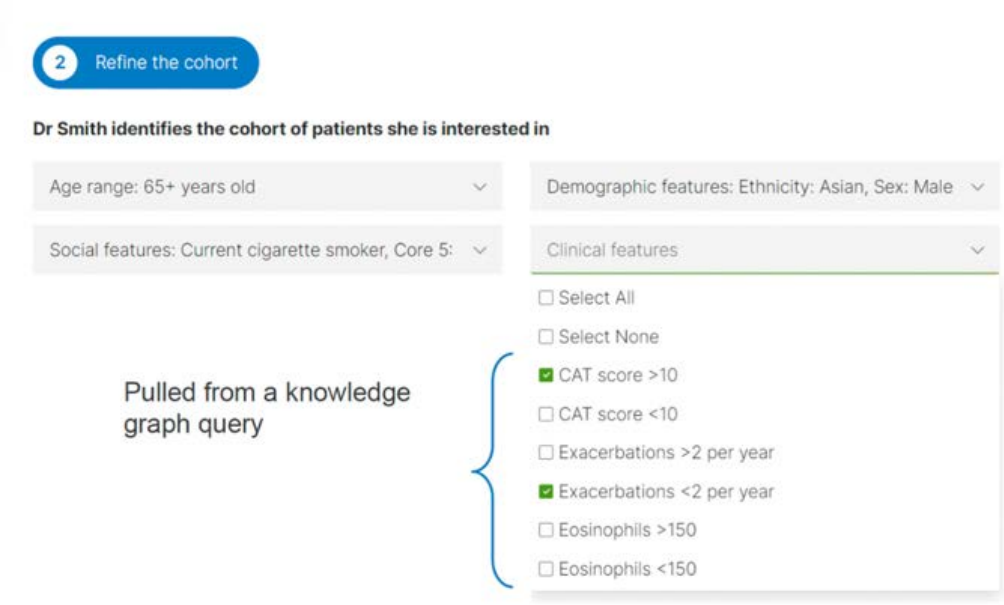
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above diagram shows that diagnostic factor is a type of data instance. Such information can be displayed as part of the knowledge graph or in any user interface.

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31, annotated with a red arrow that points to “symptom.”) The above figure appears to be a screenshot of a user interface. The above figure shows that a knowledge graph can be displayed to the end users. The figure shows that “symptom” and “Finding” such as “wheezing” (examples of diagnostic factors) can be shown to a person, as recited in the claim.
1d	receiving input from said person via said computing device indicating a factor group that subsumes said diagnostic factors and a rank for said factor group; and	On information and belief, BMJ Clinical Intelligence receives input from said person via said computing device indicating a factor group that subsumes said diagnostic factors and a rank for said factor group.

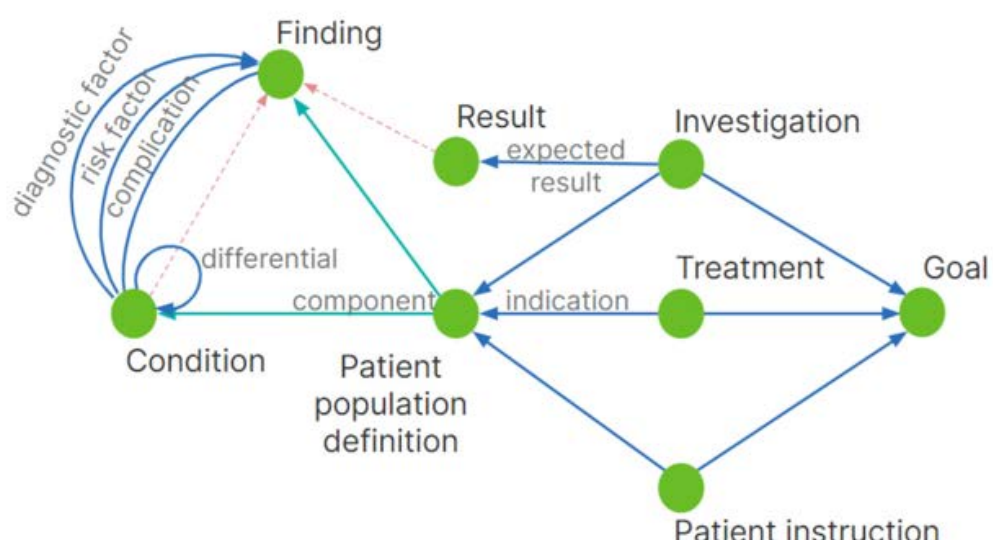
#	'674 Patent Claim	Accused Product
		What is BMJ Clinical Intelligence?  • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content • Used by BMJ for our own products and our customers ○ Integrated into clinical systems and workflows ○ Underpin end-user clinical products ○ Evidence view alongside real-world data (eg: patient records, claims data) BMJ Clinical Intelligence (BMJ Presentation at 17.)

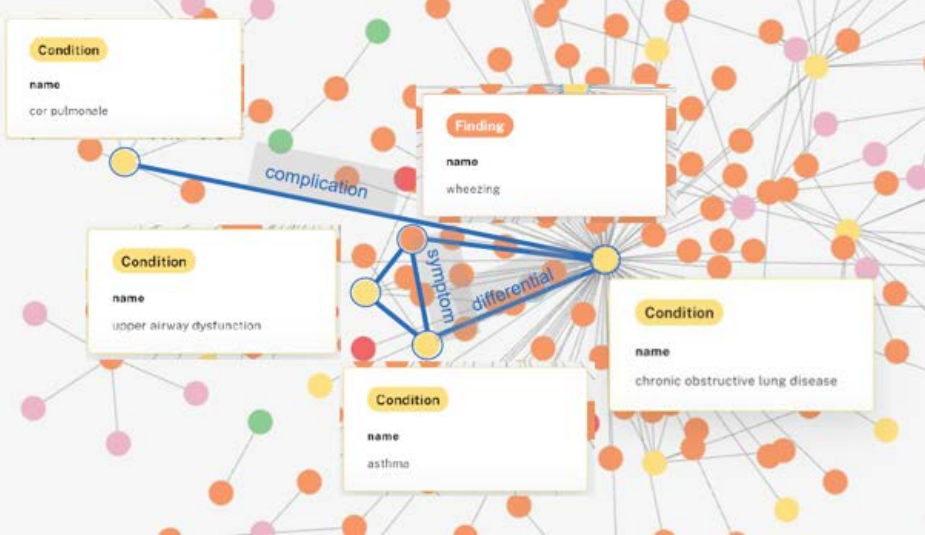
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  The diagram illustrates a knowledge graph architecture for clinical data. It starts with a central node 'Disease' (905). From 'Disease', arrows point to 'Investigation' (9339) and 'Diagnostic Criteria' (11330). 'Investigation' further branches into 'Initial' and 'Subsequent'. 'Diagnostic Criteria' branches into 'Initial' and 'Acute'. 'Initial' (under Diagnostic Criteria) branches into 'Inpatient' and 'Outpatient'. 'Acute' branches into 'Ongoing' and 'Criteria'. 'Criteria' branches into 'Short term' and 'Long term'. 'Short term' branches into 'High risk' and 'Medium risk'. 'Long term' branches into 'Medium risk' and 'Low risk'. 'Ongoing' branches into 'Criteria' and 'Variable'. 'Criteria' branches into 'High risk' and 'Medium risk'. 'Variable' branches into 'Medium risk' and 'Low risk'. 'Criteria' also branches into '1st Line', 'Plus', and 'Consider'. '1st Line' branches into 'Primary' and 'AND/OR'. 'Plus' branches into 'Primary' and 'AND/OR'. 'Consider' branches into 'Primary' and 'AND/OR'. 'Criteria' also branches into 'Monitoring action' (5695), 'Complication', and 'Prognosis'. 'Monitoring action' branches into 'Short term' and 'Long term'. 'Complication' branches into 'Long term' and 'Variable'. 'Prognosis' branches into 'Variable' and 'Low risk'. 'Criteria' also branches into 'Risk factor' (7555), 'Screening action', and 'Prevention action'. 'Risk factor' branches into 'Strong' and 'Other'. 'Screening action' branches into 'Primary' and 'Secondary'. 'Prevention action' branches into 'Primary' and 'Secondary'. 'Criteria' also branches into 'Diagnostic factor' (11705), which branches into 'Key' and 'Other'. 'Key' branches into 'Common' and 'Uncommon'. 'Other' branches into 'Common' and 'Uncommon'. (BMJ Presentation at 32.) Consistent with BMJ long-term practice, BMJ likely uses its editors’ manual inputs as a human-in-the-loop approach in building its knowledge graph. As indicated on page 17 of the BMJ Presentation, in explaining what BMJ Clinical Intelligence is, the Presentation emphasizes that BMJ employs “rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content.” As a result of this “editorial methodology,” the resultant knowledge graph architecture, as indicated on page 32 of the BMJ Presentation, includes diagnostic factors that are grouped and ranked as “Key,” “Other,” “Common,” and “Uncommon.” This indicates that, in building the knowledge graph, BMJ presents various diagnostic factors for expert annotation and organization and storing any ranking and groupings in its database as data entries.

#	'674 Patent Claim	Accused Product
		The clinical analyst: 1. Chooses the clinical topic area or areas. 2. Defines the cohort to focus on across clinical, demographic and social features. The knowledge graph is used to support the analyst to cover those features most relevant to the clinical conditions. 3. Defines clinical metrics in terms of the take up of recommended interventions. Enables analyst to: • Identifies individuals that need intervention. • Identifies process improvements if recommended interventions have been delayed, and monitors for improving trend in metrics. (BMJ Presentation at 34.) The above figure shows that a user such as a “clinical analyst” can choose different groupings such as “clinical topic area,” or “defines the cohort to focus on across clinical, demographic and social features.” Concepts such as “clinical optic area” and “definition of cohort” can include groupings of diagnostic factors. Standards Based Data Capture HL7 FHIR Structured Data Capture  • Data collection specified using the same FHIR building blocks • Can prepopulate from patient's record • Can go back into the patient's record • The BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant (BMJ Presentation at 27.)

#	'674 Patent Claim	Accused Product
		Several figures in the BMJ Presentation demonstrate that BMJ Clinical Intelligence likely allows end users to interact with the factor groups. For example, the above screenshot on page 27 of the BMJ Presentation shows that an end user can build a data collection form for COPD information. The data could be “prepopulated from patient’s record” and the “BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant.” The list on page 27 includes investigations (eosinophil level and FEV1), patient assessment (COPD assessment test score (this is the CAT score mentioned later)), and encounters (admissions for exacerbation). As such, the user interface on page 27 shows that BMJ Clinical Intelligence allows an end user to group diagnostic factors that are relevant to COPD.  (BMJ Presentation at 36.)

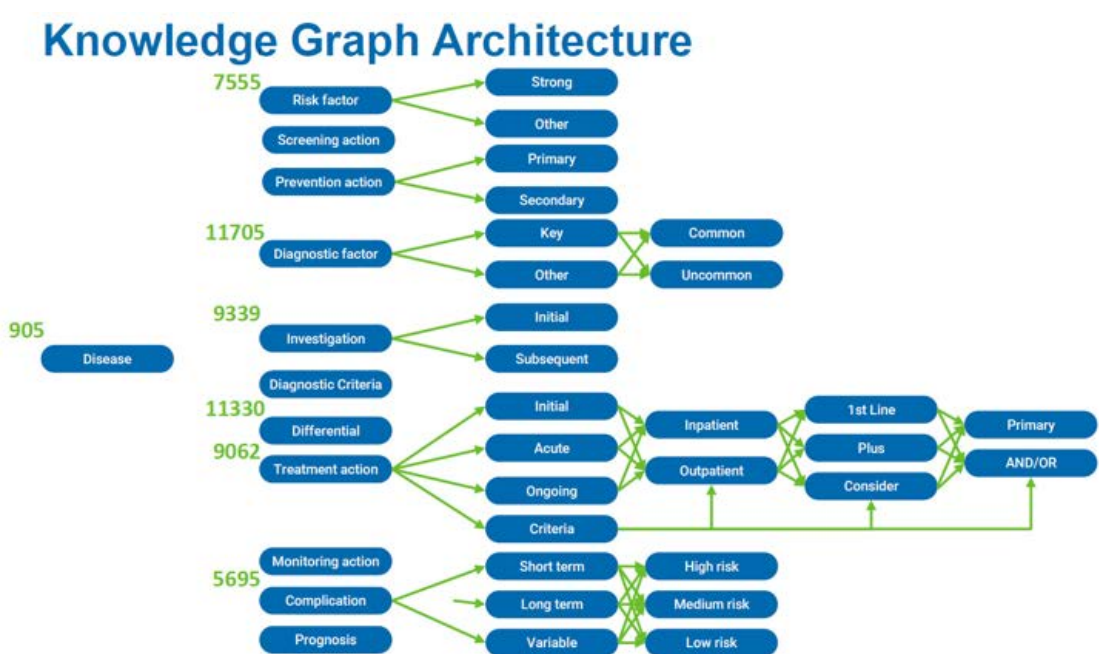
#	'674 Patent Claim	Accused Product
		2 Refine the cohort Dr Smith identifies the cohort of patients she is interested in Age range: 65+ years old + Social features: Current cigarette smoker, Core 5: Demographic features: Ethnicity: Asian, Sex: Male Clinical features Global Initiative for Chronic Obstructive 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 -- evidence --> GOLD[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/]] 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.) A series of screen captures from page 35 to page 38 of the BMJ Presentation provides another example where an end user can group diagnostic factors using BMJ Clinical Intelligence. The user interface shows that an end user may create a set of patients based on grouping and criteria, such as COPD, CAT scores, exacerbations, and Eosinophils. By receiving user selection of various grouping criteria, the BMJ system provides an identification of a group of patients (e.g., patient cohort) who fit the criteria. In order for the patients who fit the criteria to be identified, BMJ Clinical Intelligence needs to accept the diagnostic factor grouping selected by the user. BMJ likely also allows end users to retrieve a knowledge graph and customize the knowledge graph. For example, on page 31 of the BMJ Presentation, BMJ provides a user interface that allows end users to view a knowledge graph. The end users likely have the capability to edit the underlying entries in the knowledge graph and add custom knowledge, including grouping and ranking, to the graph.

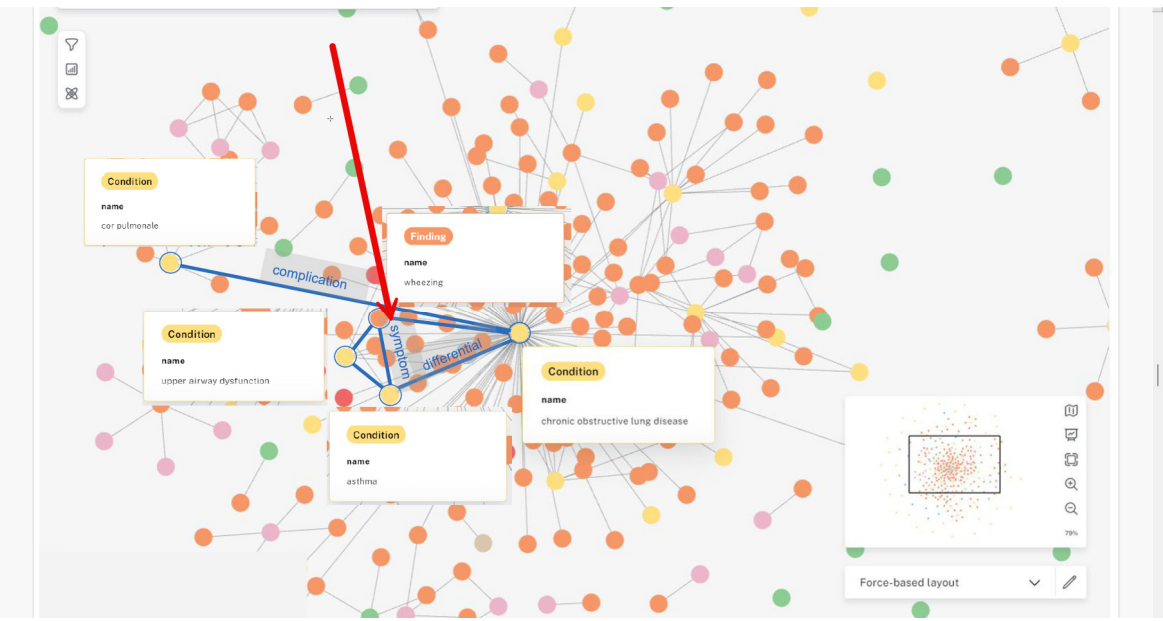
#	'674 Patent Claim	Accused Product
1e	storing said medical condition, said factor group and each of said diagnostic factors each as a separate entry in a database, said medical condition linked to said factor group and said factor group linked to each of said diagnostic factors, wherein an entry of each of said diagnostic factors in said database does not include information specific to said medical condition.	BMJ Clinical Intelligence stores said medical condition, said factor group and each of said diagnostic factors each as a separate entry in a database, said medical condition linked to said factor group and said factor group linked to each of said diagnostic factors, wherein an entry of each of said diagnostic factors in said database does not include information specific to said medical condition. Knowledge Graph Architecture  The diagram illustrates a Knowledge Graph Architecture with the following nodes and relationships: Condition (green circle) is linked to Finding (green circle) via three curved blue arrows labeled "diagnostic factor", "risk factor", and "complication". Condition has a self-loop labeled "differential component" (dashed red arrow). Condition is linked to Patient population definition (green circle) via a solid green arrow labeled "component". Patient population definition is linked to Finding via a solid green arrow. Patient population definition is linked to Investigation (green circle) via a solid blue arrow labeled "indication". Investigation is linked to Result (green circle) via a solid blue arrow labeled "expected result". Investigation is linked to Treatment (green circle) via a solid blue arrow. Treatment is linked to Goal (green circle) via a solid blue arrow. Patient instruction (green circle) is linked to Goal via a solid blue arrow. (BMJ Presentation at 30.)

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

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) The three figures above about BMJ’s “knowledge graph architecture” illustrate that diagnostic factor and “condition” (or “disease”) are separate and independent data entries. The figure on page 31 shows an example of a “Finding” node as “wheezing.” Since “wheezing” is a “diagnostic factor,” the “Finding” node on page 30 is an example of “diagnostic factor” data entry, as recited in claim 1. On page 30, a “Finding” node and a “Condition” node are separate and independent data entries. BMJ’s white paper discloses, “The knowledge assets are also comprehensive: they cover over thirty medical specialties across the breadth of primary, secondary, and tertiary care. They cover each topic in-depth and cover the entire clinical workflow at the point of care – including screening, triage, diagnosis, differential diagnosis, investigations, treatment, follow-up, and healthcare maintenance. The knowledge assets work at the population health level as well – they include comprehensive population health monitoring, intelligent analysis, and early intervention that can enable better screening and diagnosis, prompt and comprehensive treatment, and primary

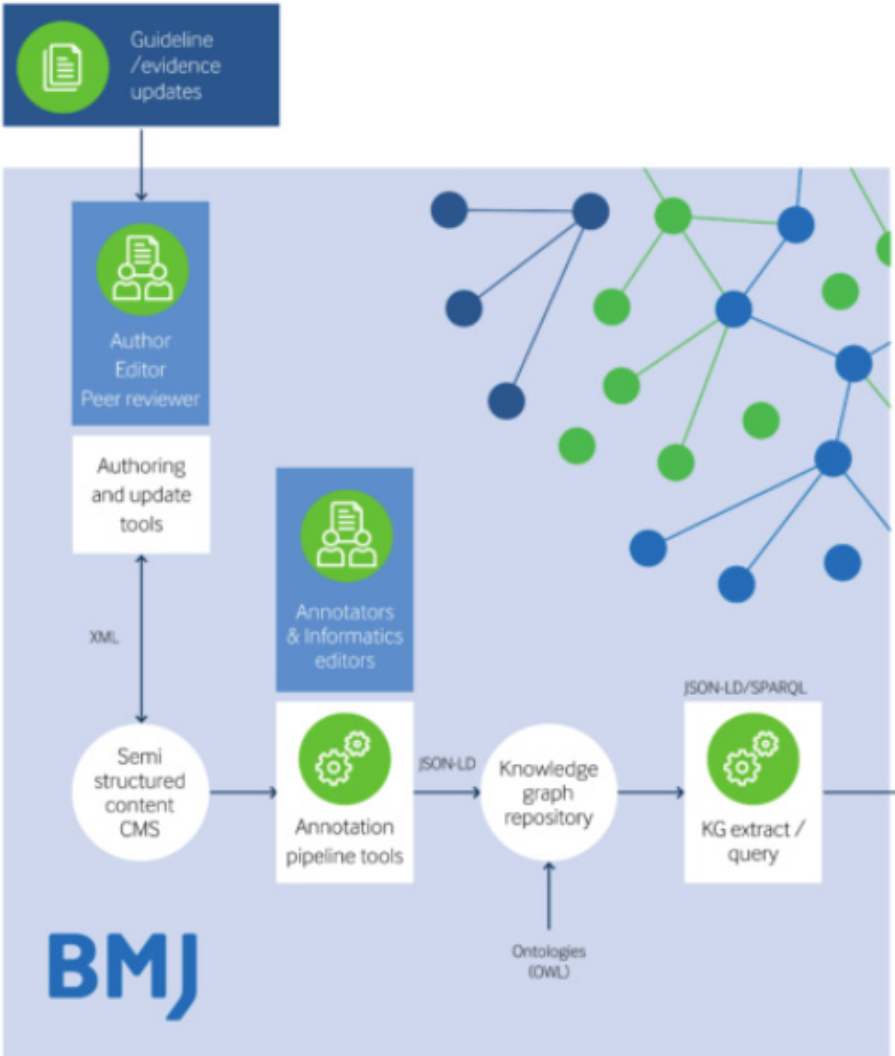
#	'674 Patent Claim	Accused Product
		and secondary prevention.” (BMJ White Paper at 7.) These statements indicate that BMJ’s “comprehensive” “knowledge assets” include various types of data entries, including “screening,” “diagnosis,” “investigations,” and “treatment.”

#	'674 Patent Claim	Accused Product
2	2. A method as recited in claim 1 further comprising: displaying on said computing device a portion of said database which includes said medical condition entry, said factor group entry and each of said diagnostic factor entries and the links between them.	BMJ Clinical Intelligence displays on said computing device a portion of said database which includes said medical condition entry, said factor group entry and each of said diagnostic factor entries and the links between them. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1.  The diagram, titled "Knowledge Graph Architecture", illustrates a hierarchical structure of medical data entries and their relationships. It starts with a "Disease" node (905) on the left, which branches into "Investigation" (9339) and "Diagnostic Criteria" (11330). "Investigation" further branches into "Initial" and "Subsequent". "Diagnostic Criteria" branches into "Differential" and "Treatment action" (9062). "Treatment action" branches into "Initial", "Acute", "Ongoing", and "Criteria". "Criteria" branches into "Inpatient" and "Outpatient". "Inpatient" branches into "1st Line", "Plus", and "Consider". "Outpatient" branches into "1st Line", "Plus", and "Consider". "1st Line", "Plus", and "Consider" all lead to "Primary" and "AND/OR". "Monitoring action" (5695) branches into "Short term", "Long term", and "Variable". "Short term" branches into "High risk", "Medium risk", and "Low risk". "Long term" branches into "High risk", "Medium risk", and "Low risk". "Variable" branches into "High risk", "Medium risk", and "Low risk".

#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 32, “diagnostic factor 11705”). The above diagram shows that diagnostic factor is a type of data instance. Such information can be displayed as part of the knowledge graph or in any user interface.  (BMJ Presentation at 31, annotated with a red arrow that points to “symptom.”) The above figure appears to be a screencap of a user interface. The above figure shows that a knowledge graph can be displayed to the end users. The figure shows that “symptom” and “Finding” such as “wheezing” (examples of diagnostic factors) can be shown to a person, as recited in the claim.

#	'674 Patent Claim	Accused Product
3	3. A method as recited in claim 1 wherein said database	BMJ Clinical Intelligence stores separate entries in a graph database and each separate entry is a node.

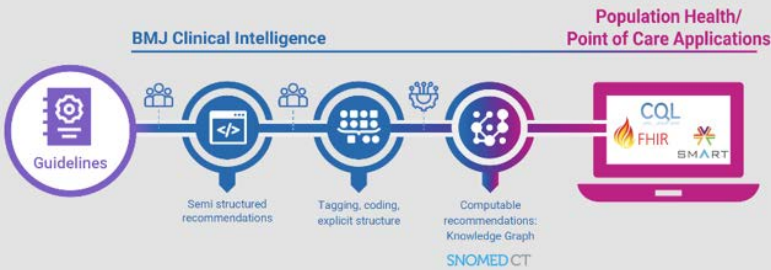
#	'674 Patent Claim	Accused Product
	is a graph database and said each separate entry is a node.	As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. For example, BMJ's graph database is expressly referred to by BMJ as a "knowledge graph," and the individual clinical concept nodes discussed above (e.g., "asthma," "wheezing," "chronic obstructive lung disease") are nodes of that knowledge graph. BMJ's technical architecture page states that a "[k]nowledge graph (KG): A knowledge graph captures knowledge as a network of entities (or nodes) and relationships between them," and identifies its "Knowledge graph repository" as a core component of BMJ Clinical Intelligence. Knowledge graph (KG): A knowledge graph captures knowledge as a network of entities (or nodes) and relationships between them. It is a way of organizing information in a structured and computable way that places greater focus on the interconnections between entities which is a central feature of healthcare knowledge.

#	'674 Patent Claim	Accused Product
		 Technical Architecture, available at https://clinicalintelligence.bmj.com/technical-architecture/ (last visited September 2, 2026) ("BMJ Website: Technical Architecture").

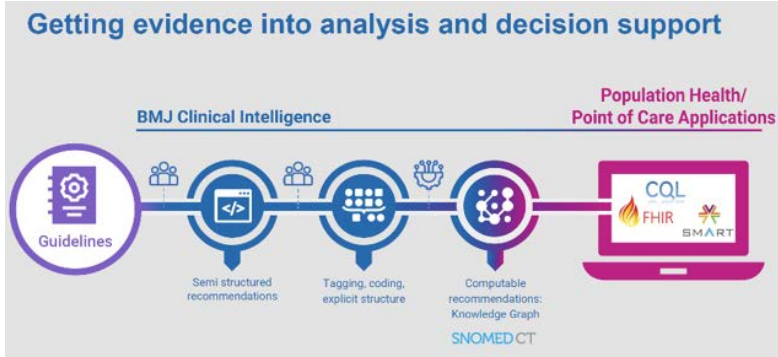
#	'674 Patent Claim	Accused Product
		In addition, BMJ's Whitepaper states that "BMJ clinical intelligence is our knowledge graph" and that its "structured representation of knowledge allows for a comprehensive understanding of relationships between medical entities." Accordingly, BMJ's graph database is a knowledge graph, and each separate clinical-concept node discussed above (e.g., the "asthma" condition node and the "wheezing" finding node) is a node of that knowledge graph. An alternative is a knowledge graph approach. BMJ clinical intelligence is our knowledge graph, and it has been designed to overcome the limitations of traditional rule-based systems. BMJ clinical intelligence is an evidence-based and continuously updated resource covering a range of medical specialties. Its structured representation of knowledge allows for a comprehensive understanding of relationships between medical entities, fostering better clinical decision-making. (BMJ White Paper at 3.) What is the BMJ knowledge graph? A knowledge graph is a structured representation of information that captures the relationships between entities. It is a way to organize knowledge and data, and it highlights connections among various pieces of information. BMJ clinical intelligence is BMJ Group's proprietary, evidence-based content in a computable knowledge graph format. It is a set of continually updated, evidence-based, and structured knowledge assets. Our knowledge assets are created from evidence and guidelines, covering both single conditions and complex comorbidities. (BMJ White Paper at 6.)

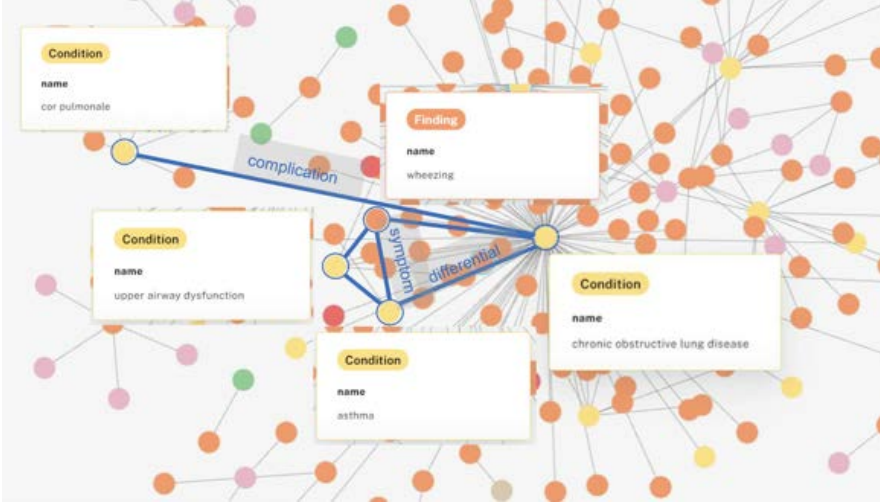
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture <pre> graph LR Finding((Finding)) Condition((Condition)) Investigation((Investigation)) Result((Result)) Treatment((Treatment)) Patient_instruction((Patient instruction)) Goal((Goal)) Finding -- "diagnostic factor" --> Condition Finding -- "risk factor" --> Condition Finding -- "complication" --> Condition Condition -- "differential component" --> Finding Condition -- "Patient population definition" --> Investigation Investigation -- "expected result" --> Result Result -- "indication" --> Investigation Investigation --> Treatment Treatment --> Goal Patient_instruction --> Goal </pre> (BMJ Presentation at 30.)

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

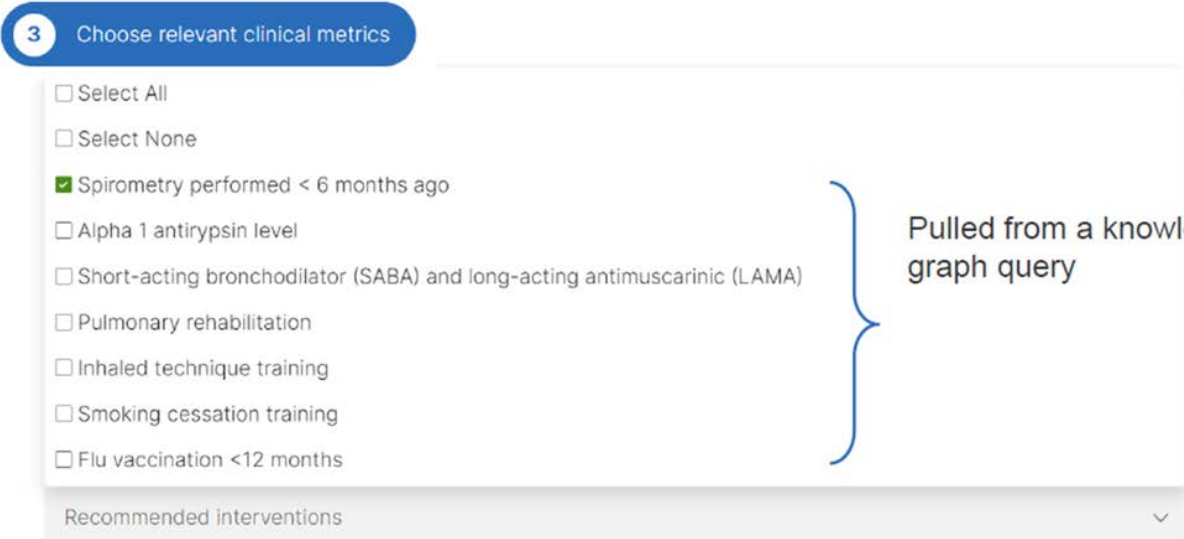
#	'674 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) The presentation also shows that BMJ uses “Common Terminology Standards (SNOMED, RxNORM, LOINC, ICD (USCDI))” for its knowledge graph. (BMJ Presentation at 13.) The common terminology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

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

#	'674 Patent Claim	Accused Product
5	5. A method as recited in claim 1 wherein each said diagnostic factor entry includes at least one synonym of said diagnostic factor.	Each diagnostic factor entry in BMJ Clinical Intelligence includes at least one synonym of said diagnostic factor. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ uses SNOMED-CT in its tagging and coding pipeline for the knowledge graph. SNOMED CT concept entries inherently include synonym descriptions as part of their standard data model. For example, the Presentation describes tagging, coding, explicit structure leading to “Computable recommendations: Knowledge Graph” with “SNOMED CT.” (BMJ Presentation at 20.) To the extent BMJ incorporates SNOMED CT concept data into its diagnostic-factor entries, those entries may include at least one SNOMED CT synonym.  (BMJ Presentation at 20.) Additionally, BMJ's own materials use both “wheeze” (in source publications) and “wheezing” (in the knowledge graph Finding node), indicating that BMJ’s editorial pipeline handles terminological variants of the same clinical concept. For example, in Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition.

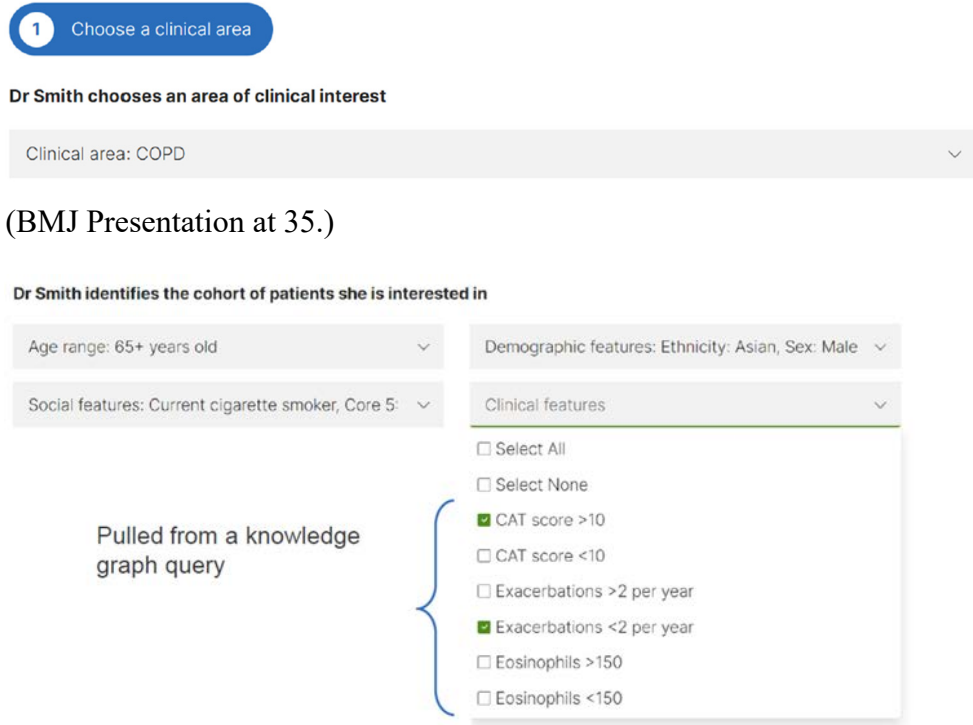
#	'674 Patent Claim	Accused Product
		Wheeze-related illness ▶ Bronchiolitis ▶ Virus-induced transient wheeze ▶ Persistent wheeze (non-atopic or atopic) ▶ Asthma In the knowledge graph of Clinical Intelligence as demonstrated in the Clinical Intelligence Presentation, BMJ extracted such association and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

#	'674 Patent Claim	Accused Product
6	6. A method as recited in claim 1 wherein each said diagnostic factor	Each diagnostic factor entry in BMJ Clinical Intelligence includes a temporality attribute, a negation attribute or an experienter attribute. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1.

#	'674 Patent Claim	Accused Product
	entry includes a temporality attribute, a negation attribute or an experienter attribute.	The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ's metric list, which it states is "[p]ulled from a knowledge graph query," includes "Spirometry performed < 6 months ago" and "Flu vaccination <12 months." (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.  (BMJ Presentation at 39.) BMJ also stores negation attributes for diagnostic factor entries. For example, the presentation shows an example in which BMJ reports whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.) "No" values stored in the diagnostic factor entries demonstrate negation attributes.

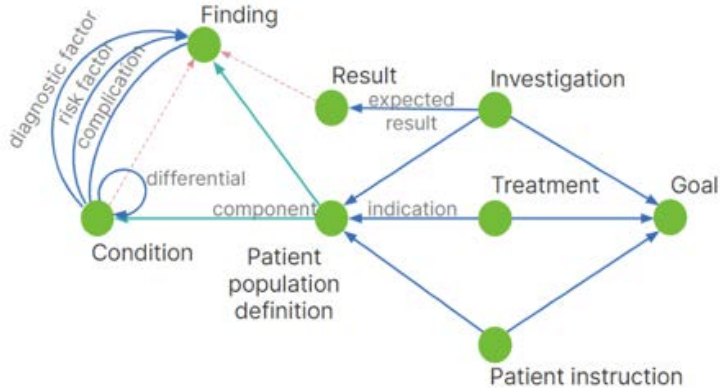
#	'674 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment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

#	'674 Patent Claim	Accused Product
7a	7. A method as recited in claim 1 further comprising: receiving input from said person via said computing device indicating a demographics corresponding to one	BMJ Clinical Intelligence receives input from said person via said computing device indicating a demographics corresponding to one of said diagnostic factors, said demographics indicating a type of person to which said diagnostic factor occurs in the context of said medical condition. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's presentation walks through an example of a clinician ("Dr. Smith") entering demographic input about a patient at a computing device. In the BMJ presentation, the options the clinician can select are diagnostic factors that occur in the context of the medical condition of "COPD."

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

#	'674 Patent Claim	Accused Product
		For example, BMJ's case study with Sayvant demonstrates demographic-based risk stratification, for example using the patient's "age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history)" to calculate a "modified HEART score" placing a specific patient in a demographic-linked risk category for a medical condition. Sayvant context-aware decision support The complex array of findings - fever, AMS, hypotension, CKD, and supratherapeutic INR - is immediately processed by Sayvant's clinical intelligence platform, powered by BMJ clinical intelligence. 1. Prioritized diagnostic prompts: The system instantly filters noise and prompts for the most critical immediate actions, aligning with best practice protocols for AMS and fever: ◦ Infection source: Prompt for immediate Urine and Blood Cultures (Suspected Sepsis). ◦ Metabolic/Glucose: Immediate bedside Glucose check (critical for AMS). ◦ Toxicity/Anticoagulation: Flag the supratherapeutic INR (Risk of intracranial hemorrhage) and recommend immediate assessment for reversal based on the patient's AMS severity and fall risk. 2. Drug/Disease interaction synthesis: Sayvant cross-references the patient's CKD status with the anticipated sepsis workup. It warns against antibiotics that are contraindicated in severe renal impairment, offering a list of preferred initial antibiotic regimens that are safe. 2026 - BMJ, Utilizing a medical knowledge graph with an intelligent clinical documentation assistant can advance modern medicine, driving operational efficiency and strengthening clinical judgment, https://info.bmj.com/view/601698364/6/ ("BMJ Case Study") at 4.

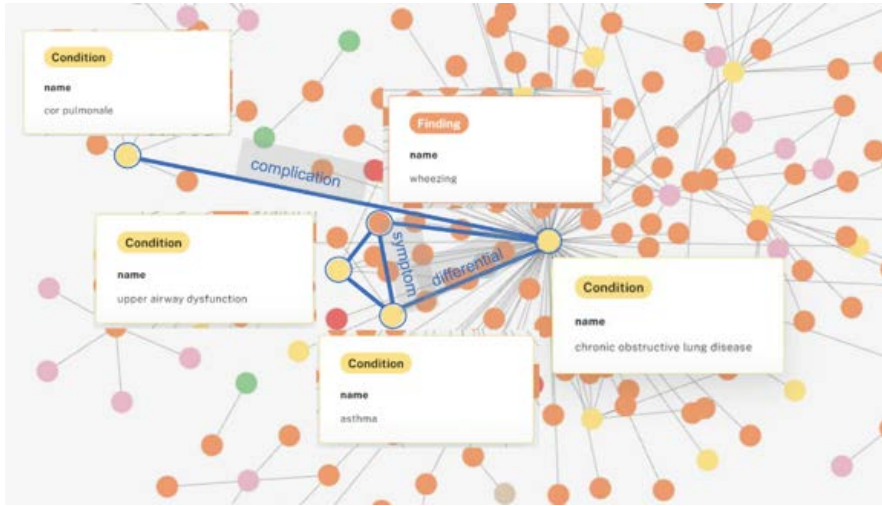
#	'674 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)
7b	storing said demographics in a demographics entry linked between said condition entry and said one of said	BMJ Clinical Intelligence stores said demographics in a demographics entry linked between said condition entry and said one of said diagnostic factors entry. The "Patient Population Definition" node type shown in BMJ's Knowledge Graph Architecture is linked between a "Condition" node and other diagnostic factor nodes such as the "Investigation," "Treatment," and "Patient Instruction" nodes. (BMJ Presentation at 30.) This demonstrates that

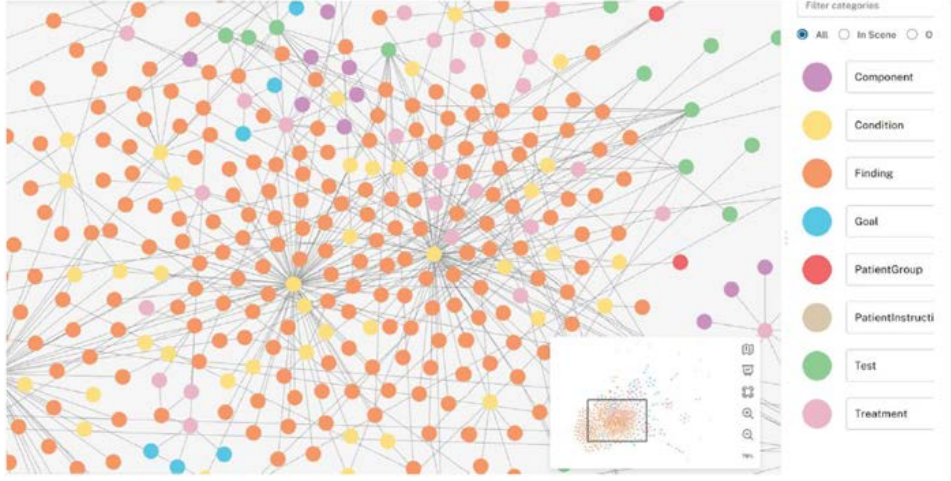
#	'674 Patent Claim	Accused Product
	diagnostic factors entry.	the BMJ knowledge graph stores the demographics in the form of a “Patient population definition” entry and that the demographics entry is linked to the medical condition and diagnostic factors entries as claimed. Knowledge Graph Architecture  <pre> graph LR Condition((Condition)) -- "diagnostic factor" --> Finding((Finding)) Condition -- "risk factor" --> Finding Condition -- "complication" --> Finding Condition -- "differential component" --> Finding Condition -- "indication" --> PatientPopDef((Patient population definition)) PatientPopDef -- "indication" --> Finding PatientPopDef -- "indication" --> Investigation((Investigation)) PatientPopDef -- "indication" --> Treatment((Treatment)) PatientPopDef -- "indication" --> PatientInstr((Patient instruction)) PatientPopDef -- "indication" --> Goal((Goal)) Investigation -- "expected result" --> Result((Result)) Investigation -- "indication" --> Treatment Investigation -- "indication" --> PatientInstr Investigation -- "indication" --> Goal Treatment -- "indication" --> PatientInstr Treatment -- "indication" --> Goal PatientInstr -- "indication" --> Goal </pre> (BMJ Presentation at 30.) For example, BMJ’s case study with Sayvant demonstrates demographic-based risk stratification, for example using the patient’s “age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history)” to calculate a “modified HEART score” placing a specific patient in a demographic-linked risk category for a medical condition.

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

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

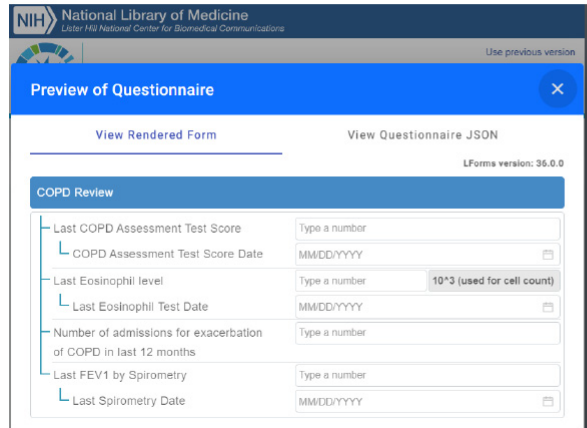
#	'674 Patent Claim	Accused Product
8a	8. A method as recited in claim 1 further comprising: repeating said steps of	BMJ Clinical Intelligence repeats said steps of inputting, processing, and displaying for a second medical condition different from said medical condition, at least one of said produced plurality of diagnostic factors for said second medical condition being the same as one of said diagnostic factors produced for said first medical condition.

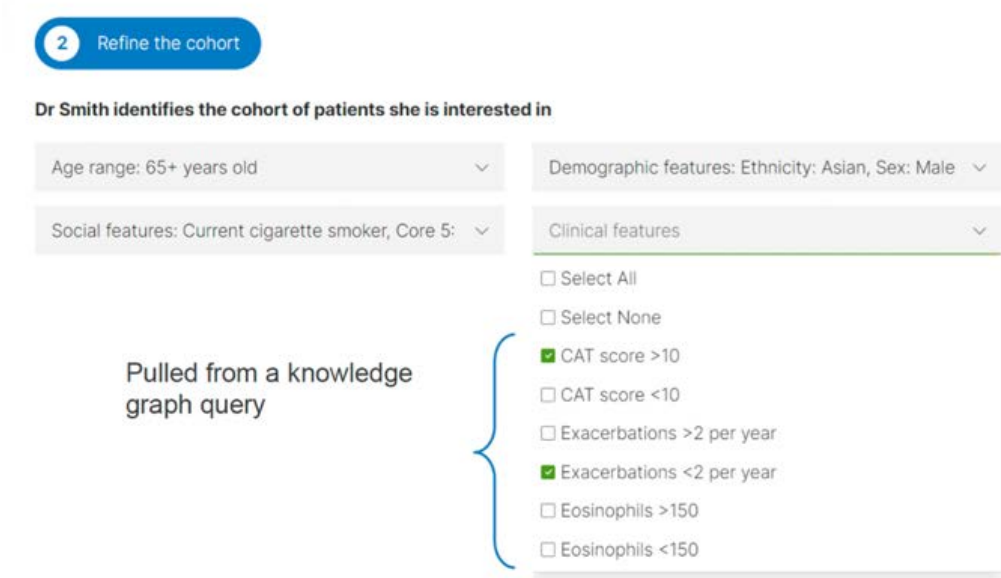
#	'674 Patent Claim	Accused Product
	inputting, processing, and displaying for a second medical condition different from said medical condition, at least one of said produced plurality of diagnostic factors for said second medical condition being the same as one of said diagnostic factors produced for said first medical condition;	As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. BMJ's example knowledge graph browser in the BMJ Presentation shows that at least one diagnostic factor shown as a "Finding" node named "wheezing" is associated with both a first medical condition node of "Asthma" and a second medical condition node of "chronic obstructive lung disease." (BMJ Presentation at 31.) This demonstrates that at least one diagnostic factor (wheezing) for a second medical condition (chronic obstructive lung disease) is the same as one of the diagnostic factors for a first medical condition (asthma).  (BMJ Presentation at 31.) In addition, a portion of the BMJ knowledge graph is shown including "Condition" nodes consistent with an entry of a medical condition and diagnostic factor entry nodes including "Finding," "Test," "Treatment," "Goal," "Component," "PatientGroup," and "PatientInstruction" nodes. (BMJ Presentation at 33.)

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 33.) BMJ states in its White Paper that its knowledge graph allows BMJ “to look at a disease and find all of its neighbors and comorbidities to which the disease might be connected” (BMJ White Paper at 8). This indicates that the BMJ diagnostic factors are shared across multiple medical conditions, for example how BMJ shows that wheezing is a diagnostic factor for asthma and for chronic obstructive lung disease. to each other to give a complete picture of a domain of practice. Knowledge graphs allow us to do decision support in novel ways. They allow us not only to do individual condition-specific decision support for a particular disease, they also allow us to look at a disease and find all of its neighbors and comorbidities to which the disease might be connected, and to find out how all of those relate to the patient’s overall state. (BMJ White Paper at 8.)
8b	receiving input from said person via said computing device indicating a second factor group that	On information and belief, BMJ Clinical Intelligence receives input from said person via said computing device indicating a second factor group that subsumes said at least one diagnostic factor and a rank for said second factor group.

#	'674 Patent Claim	Accused Product
	subsumes said at least one diagnostic factor and a rank for said second factor group; and	Consistent with BMJ long-term practice, BMJ likely uses its editors' manual inputs as a human-in-the-loop approach in building its knowledge graph. As indicated on page 17 of the BMJ Presentation, in explaining what BMJ Clinical Intelligence is, the Presentation emphasizes that BMJ employs "rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content." As a result of this "editorial methodology," the resultant knowledge graph architecture, as indicated on page 32 of the BMJ Presentation, includes diagnostic factors that are grouped and ranked as "Key," "Other," "Common," and "Uncommon." This indicates that, in building the knowledge graph, BMJ presents various diagnostic factors for expert annotation and organization and storing any ranking and groupings in its database as data entries. 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 • Used by BMJ for our own products and our customers ◦ Integrated into clinical systems and workflows ◦ Underpin end-user clinical products ◦ Evidence view alongside real-world data (eg: patient records, claims data) BMJ Clinical Intelligence (BMJ Presentation at 17.)

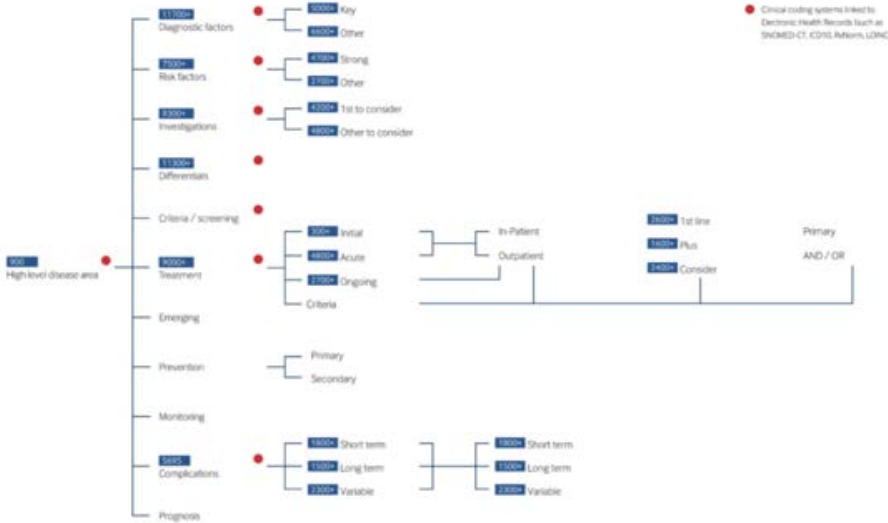
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32.) The clinical analyst: 1. Chooses the clinical topic area or areas. 2. Defines the cohort to focus on across clinical, demographic and social features. The knowledge graph is used to support the analyst to cover those features most relevant to the clinical conditions. 3. Defines clinical metrics in terms of the take up of recommended interventions. Enables analyst to: • Identifies individuals that need intervention. • Identifies process improvements if recommended interventions have been delayed, and monitors for improving trend in metrics.

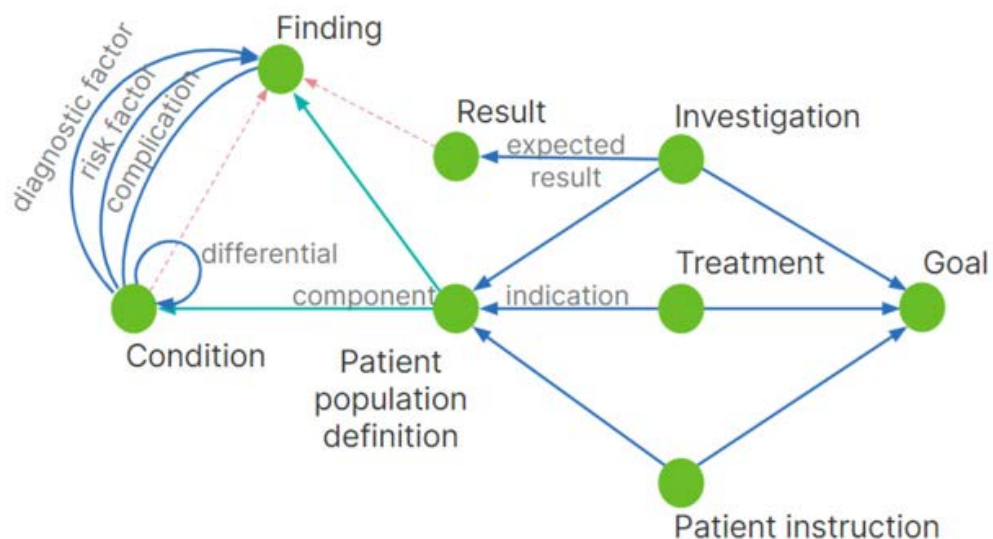
#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 34.) The above figure shows that a user such as a “clinical analyst” can choose different groupings such as “clinical topic area,” or “defines the cohort to focus on across clinical, demographic and social features.” Concepts such as “clinical optic area” and “definition of cohort” can include groupings of diagnostic factors. Standards Based Data Capture HL7 FHIR Structured Data Capture  • Data collection specified using the same FHIR building blocks • Can prepopulate from patient's record • Can go back into the patient's record • The BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant (BMJ Presentation at 27.) Several figures in the BMJ Presentation demonstrate that BMJ Clinical Intelligence likely allows end users to interact with the factor groups. For example, the above screenshot on page 27 of the BMJ Presentation shows that an end user can build a data collection form for COPD information. The data could be “prepopulated from patient’s record” and the “BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant.” The list on page 27 includes investigations (eosinophil level and FEV1), patient assessment (COPD assessment test score (this is the CAT score mentioned later)), and encounters (admissions for exacerbation). As such, the user interface on page 27 shows that BMJ Clinical Intelligence allows an end user to group diagnostic factors that are relevant to COPD.

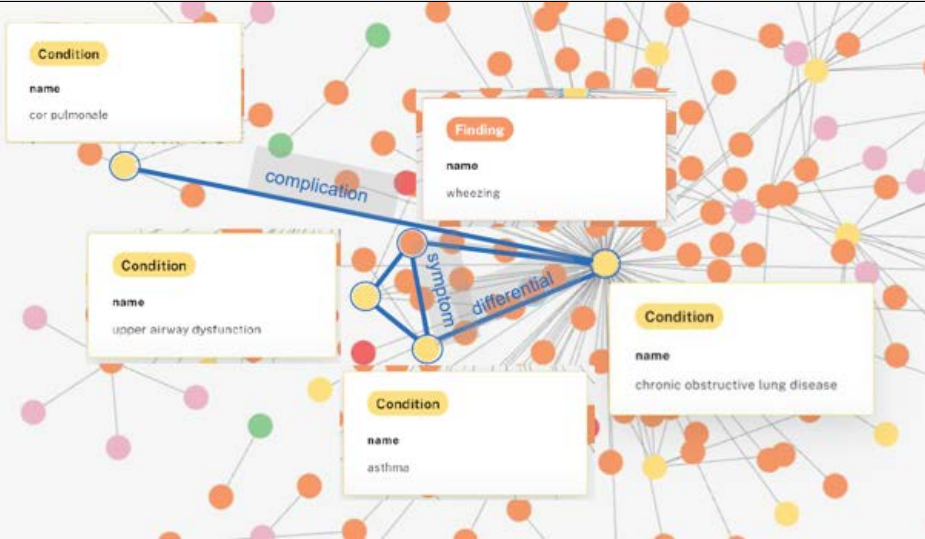
#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 36.)

#	'674 Patent Claim	Accused Product
		2 Refine the cohort Dr Smith identifies the cohort of patients she is interested in Age range: 65+ years old + Social features: Current cigarette smoker, Core 5: Demographic features: Ethnicity: Asian, Sex: Male Clinical features 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 Indicated_Population [indicated population] COPD Adult end Indicated_Population --> SSS[standardized symptoms score] SSS -- evidence --> GOLD[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/]] 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 38.) A series of screenshots from page 35 to page 38 of the BMJ Presentation provides another example where an end user can group diagnostic factors using BMJ Clinical Intelligence. The user interface shows that an end user may create a set of patients based on grouping and criteria, such as COPD, CAT scores, exacerbations, and Eosinophils. By receiving user selection of various grouping criteria, the BMJ system provides an identification of a group of patients (e.g., patient cohort) who fit the criteria. In order for the patients who fit the criteria to be identified, BMJ Clinical Intelligence needs to accept the diagnostic factor grouping selected by the user. BMJ likely also allows end users to retrieve a knowledge graph and customize the knowledge graph. For example, on page 31 of the BMJ Presentation, BMJ provides a user interface that allows end users to view a knowledge graph. The end users likely have the capability to edit the underlying entries in the knowledge graph and add custom knowledge, including grouping and ranking, to the graph.

#	'674 Patent Claim	Accused Product
		BMJ's Whitepaper explains that its knowledge graph enables users to "look across the graph for relationships between diseases and other diseases, between diseases and findings," and that BMJ's editorial and informatics teams translate "evidence-based" clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ's Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition.

#	'674 Patent Claim	Accused Product
		 (BMJ Website: Knowledge Graph Architecture.)
8c	storing said second medical condition and said second factor group each as a separate entry in said database, said second medical condition linked to said second factor group and said second factor group linked to an entry in said database for said at least one diagnostic factor.	BMJ Clinical Intelligence stores said second medical condition and said second factor group each as a separate entry in said database, said second medical condition linked to said second factor group and said second factor group linked to an entry in said database for said at least one diagnostic factor.

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  <pre> graph LR Condition((Condition)) -- "diagnostic factor" --> Finding((Finding)) Condition -- "risk factor" --> Finding Condition -- "complication" --> Finding Condition -- "differential component" --> Finding Condition -- "differential component" --> PatientDef[Patient population definition] PatientDef -- "component" --> Finding PatientDef -- "indication" --> Investigation((Investigation)) PatientDef -- "indication" --> Treatment((Treatment)) PatientDef -- "indication" --> PatientInst[Patient instruction] PatientDef -- "indication" --> Goal((Goal)) Investigation -- "expected result" --> Result((Result)) Investigation --> Goal Treatment --> Goal PatientInst --> Goal </pre> (BMJ Presentation at 30.)

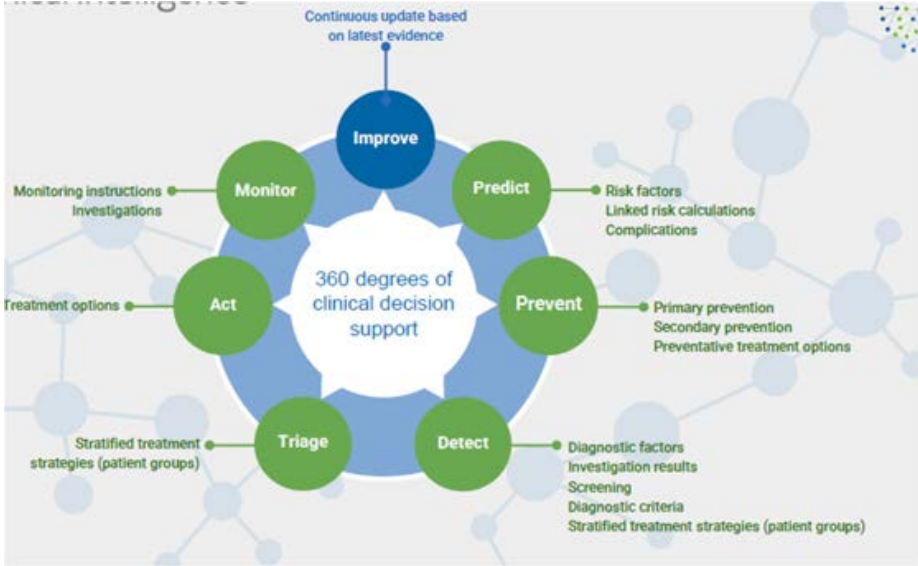
#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31.)

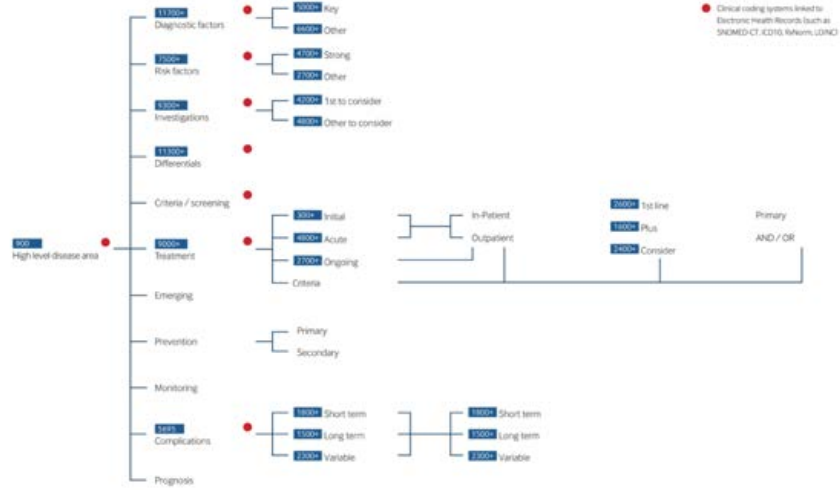
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) The three figures above about BMJ’s “knowledge graph architecture” illustrate that diagnostic factor and “condition” (or “disease”) are separate and independent data entries. The figure on page 31 shows an example of a “Finding” node as “wheezing.” Since “wheezing” is a “diagnostic factor,” the “Finding” node on page 30 is an example of “diagnostic factor” data entry, as recited in claim 1. On page 30, a “Finding” node and a “Condition” node are separate and independent data entries. BMJ’s white paper discloses, “The knowledge assets are also comprehensive: they cover over thirty medical specialties across the breadth of primary, secondary, and tertiary care. They cover each topic in-depth and cover the entire clinical workflow at the point of care – including screening, triage, diagnosis, differential diagnosis, investigations, treatment, follow-up, and healthcare maintenance. The knowledge assets work at the population health level as well – they include comprehensive population health monitoring, intelligent analysis, and early intervention that can enable better screening and diagnosis, prompt and comprehensive treatment, and primary

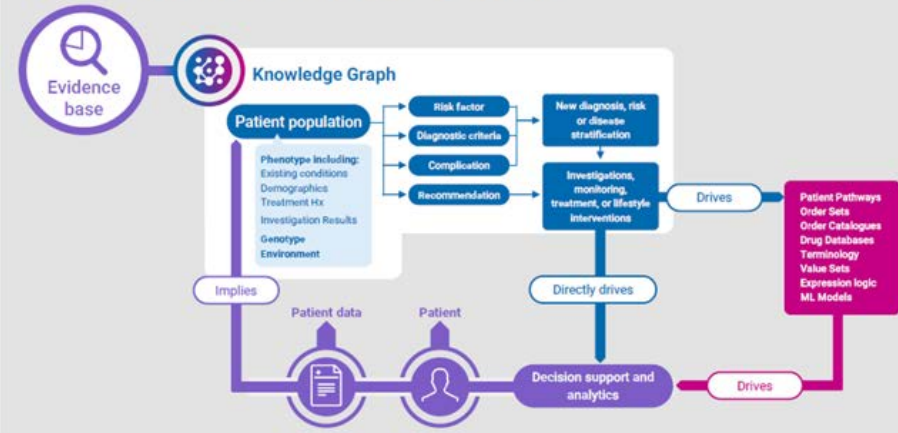
#	'674 Patent Claim	Accused Product
		and secondary prevention.” (BMJ White Paper at 7.) These statements indicate that BMJ’s “comprehensive” “knowledge assets” include various types of data entries, including “screening,” “diagnosis,” “investigations,” and “treatment.”

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

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

#	'674 Patent Claim	Accused Product
11a	11. A method as recited in claim 1 wherein said processing produces at least one laboratory test indicative of said medical condition;	Said processing in BMJ Clinical Intelligence produces at least one laboratory test indicative of said medical condition. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 1. For example, the BMJ presentation shows how “investigations” are a part of detecting conditions and monitoring treatment. (BMJ Presentation at 18). The knowledge graph architecture diagram shown in the BMJ website indicates that the investigations are linked to “high level disease areas” which corresponds to associating the investigations with medical conditions. The investigations are consistent with laboratory tests as recited in the claim.  (BMJ Presentation at 18.)

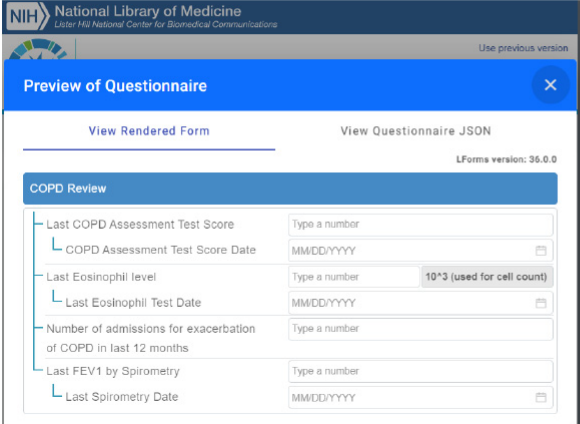
#	'674 Patent Claim	Accused Product
		 (BMJ Website: Technical Architecture.) The “investigations” described by BMJ are consistent with laboratory tests. For example, the Presentation describes certain use cases of the knowledge graph being to “reduce unwarranted variation in investigation” including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

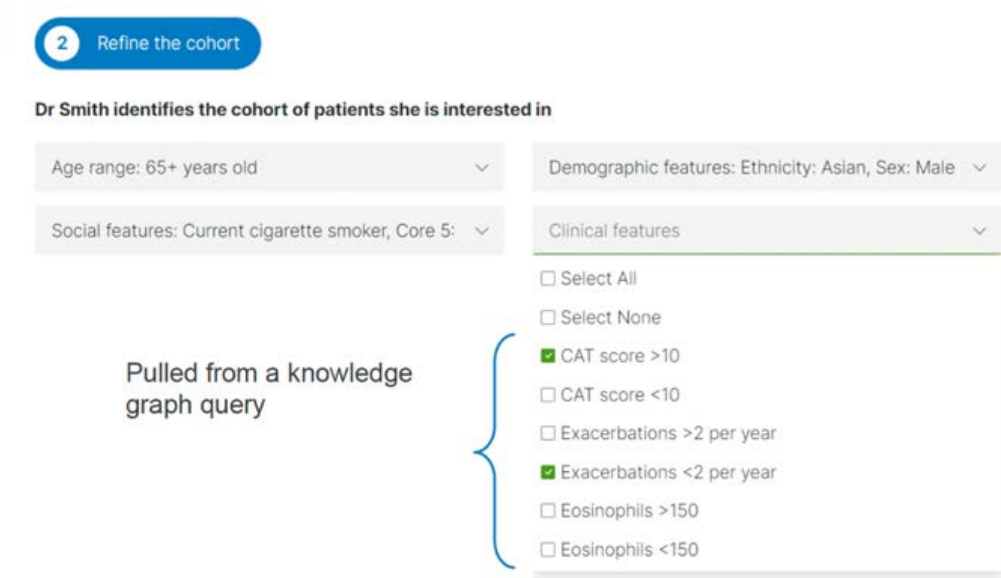
#	'674 Patent Claim	Accused Product
		Sustainable patient centred cycle  (BMJ Presentation at 45.)
11b	displaying said laboratory test on a computing device to said person;	BMJ Clinical Intelligence displays said laboratory test on a computing device to said person. For example, the Sayvant case study describes how the Clinical Intelligence platform “automatically produces defensible documentation” and “generates complete, defensible clinical documentation that includes medical decision-making rationale and differential diagnoses.” Providing documentation that is available to clinicians is consistent with displaying laboratory tests (which may be relevant to diagnoses and part of the health record data) on a computing device. (BMJ Case Study at 1.)

#	'674 Patent Claim	Accused Product
		Sayvant provides clinical intelligence for Acute Care, delivering real-time clinical intelligence that supports clinical reasoning and automatically produces defensible documentation. The platform's AI-powered, voice-enabled clinical intelligence engine captures clinician-patient interactions and generates complete, defensible clinical documentation that includes medical decision-making rationale and differential diagnoses. By integrating seamlessly with electronic health record systems, Sayvant enables organizations to scale high-quality care, protect reimbursement, and give clinicians more time with patients. (BMJ Case Study at 1.)
11c	receiving input from said person via said computing device indicating an investigation group that subsumes said laboratory test and a rank for said investigation group; and	On information and belief, BMJ Clinical Intelligence receives input from said person via said computing device indicating an investigation group that subsumes said laboratory test and a rank for said investigation group. Consistent with BMJ long-term practice, BMJ likely uses its editors' manual inputs as a human-in-the-loop approach in building its knowledge graph. As indicated on page 17 of the BMJ Presentation, in explaining what BMJ Clinical Intelligence is, the Presentation emphasizes that BMJ employs "rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content." As a result of this "editorial methodology," the resultant knowledge graph architecture, as indicated on page 32 of the BMJ Presentation, includes diagnostic factors that are grouped and ranked as "Key," "Other," "Common," and "Uncommon." This indicates that, in building the knowledge graph, BMJ presents various diagnostic factors for expert annotation and organization and storing any ranking and groupings in its database as data entries.

#	'674 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 • Used by BMJ for our own products and our customers ◦ Integrated into clinical systems and workflows ◦ Underpin end-user clinical products ◦ Evidence view alongside real-world data (eg: patient records, claims data) BMJ Clinical Intelligence (BMJ Presentation at 17.)

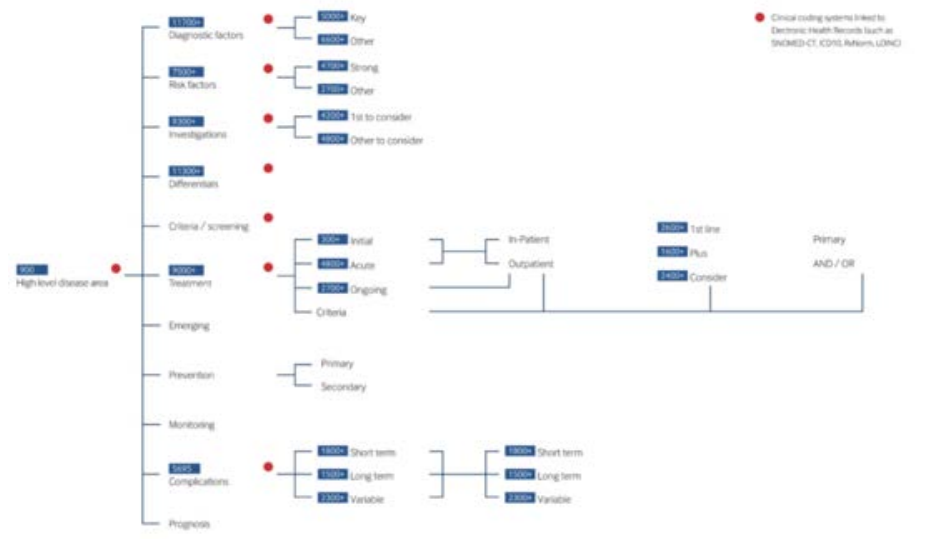
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32.) The clinical analyst: 1. Chooses the clinical topic area or areas. 2. Defines the cohort to focus on across clinical, demographic and social features. The knowledge graph is used to support the analyst to cover those features most relevant to the clinical conditions. 3. Defines clinical metrics in terms of the take up of recommended interventions. Enables analyst to: • Identifies individuals that need intervention. • Identifies process improvements if recommended interventions have been delayed, and monitors for improving trend in metrics.

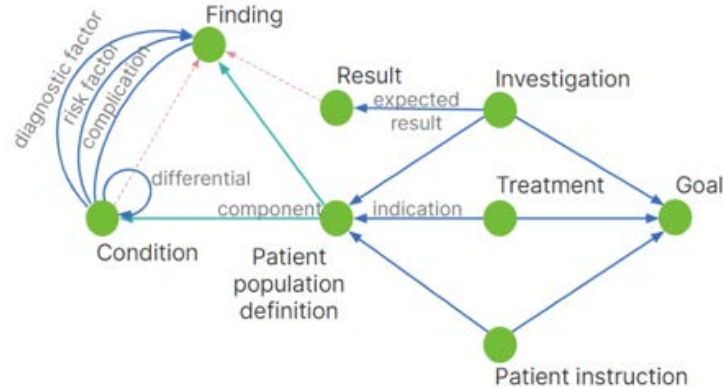
#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 34.) The above figure shows that a user such as a “clinical analyst” can choose different groupings such as “clinical topic area,” or “defines the cohort to focus on across clinical, demographic and social features.” Concepts such as “clinical optic area” and “definition of cohort” can include groupings of diagnostic factors. Standards Based Data Capture HL7 FHIR Structured Data Capture  • Data collection specified using the same FHIR building blocks • Can prepopulate from patient's record • Can go back into the patient's record • The BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant (BMJ Presentation at 27.) Several figures in the BMJ Presentation demonstrate that BMJ Clinical Intelligence likely allows end users to interact with the factor groups. For example, the above screencap on page 27 of the BMJ Presentation shows that an end user can build a data collection form for COPD information. The data could be “prepopulated from patient’s record” and the “BMJ Computable Intelligence Knowledge Graph can help by providing the list of what is relevant.” The list on page 27 includes investigations (eosinophil level and FEV1), patient assessment (COPD assessment test score (this is the CAT score mentioned later)), and encounters (admissions for exacerbation). As such, the user interface on page 27 shows that BMJ Clinical Intelligence allows an end user to group diagnostic factors that are relevant to COPD.

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 36.)

#	'674 Patent Claim	Accused Product
		2 Refine the cohort Dr Smith identifies the cohort of patients she is interested in Age range: 65+ years old + Social features: Current cigarette smoker, Core 5: Demographic features: Ethnicity: Asian, Sex: Male Clinical features 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 Indicated_Population [indicated population] COPD Adult end Indicated_Population --> SSS[standardized symptoms score] SSS -- evidence --> GOLD[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/]] 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.) A series of screenshots from page 35 to page 38 of the BMJ Presentation provides another example where an end user can group diagnostic factors using BMJ Clinical Intelligence. The user interface shows that an end user may create a set of patients based on grouping and criteria, such as COPD, CAT scores, exacerbations, and Eosinophils. By receiving user selection of various grouping criteria, the BMJ system provides an identification of a group of patients (e.g., patient cohort) who fit the criteria. In order for the patients who fit the criteria to be identified, BMJ Clinical Intelligence needs to accept the diagnostic factor grouping selected by the user. BMJ likely also allows end users to retrieve a knowledge graph and customize the knowledge graph. For example, on page 31 of the BMJ Presentation, BMJ provides a user interface that allows end users to view a knowledge graph. The end users likely have the capability to edit the underlying entries in the knowledge graph and add custom knowledge, including grouping and ranking, to the graph.

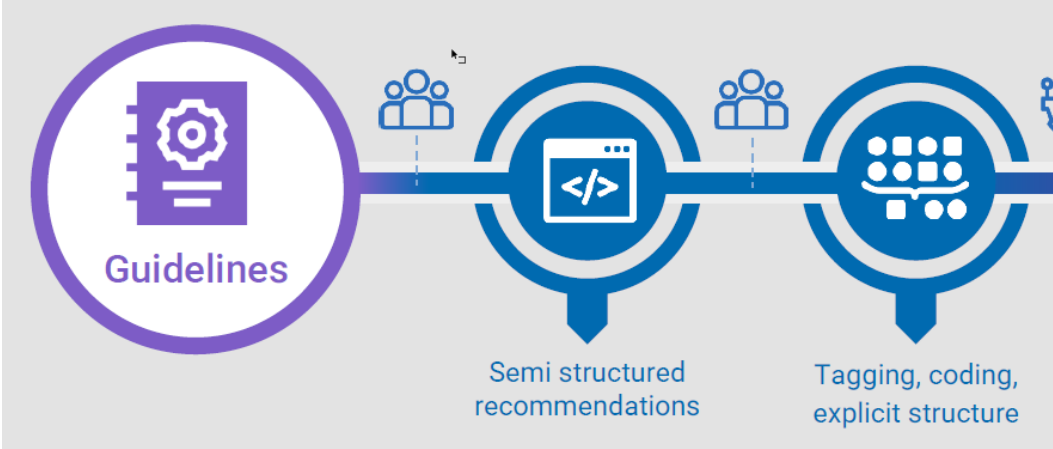
#	'674 Patent Claim	Accused Product
		BMJ's Whitepaper explains that its knowledge graph enables users to “look across the graph for relationships between diseases and other diseases, between diseases and findings,” and that BMJ's editorial and informatics teams translate “evidence-based” clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ's Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes “Strong” risk factors from “Other” risk factors and “1st to consider” investigations from “Other to consider” investigations — categories that reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition.

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

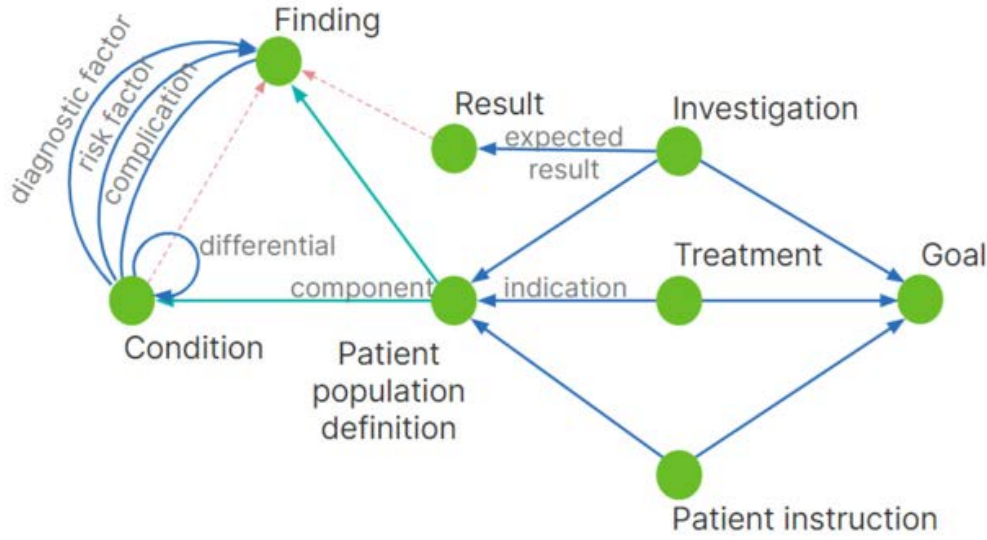
#	'674 Patent Claim	Accused Product
	specific to said medical condition.	Knowledge Graph Architecture  The diagram illustrates a Knowledge Graph Architecture with nodes representing medical concepts: Condition, Finding, Investigation, Treatment, Goal, Patient population definition, Patient instruction, and Result. Relationships are shown as directed edges: Condition to Finding (diagnostic factor, risk factor, complication), Condition to Finding (differential component), Condition to Investigation (indication), Condition to Patient population definition, Condition to Patient instruction, Finding to Investigation (Result, expected result), Investigation to Treatment, Treatment to Goal, Patient instruction to Goal, and Patient population definition to Goal. (BMJ Presentation at 30.)

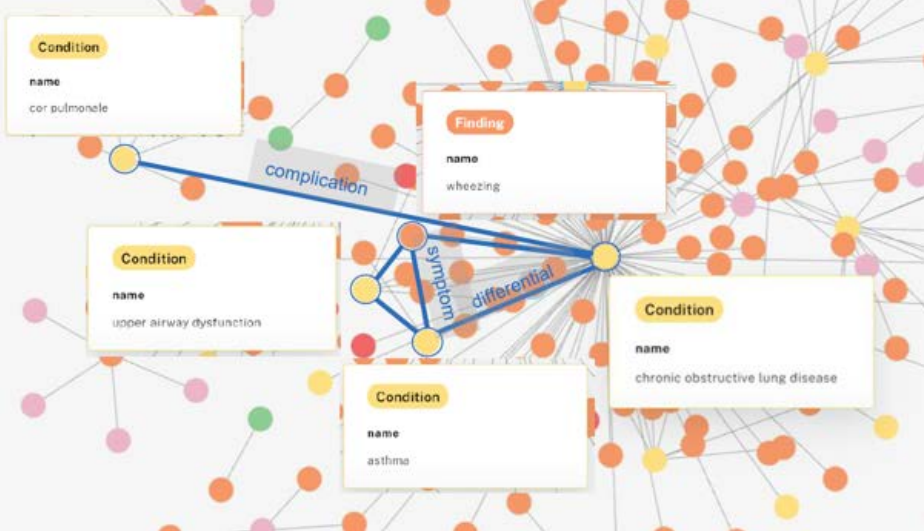
#	'674 Patent Claim	Accused Product
12pre	A method of determining a state of a patient, said method comprising:	To the extent the preamble is found to be limiting, BJM makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, that perform a method of determining a state of a patient. “BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis.” (BMJ White Paper at 3.) “The knowledge assets are also comprehensive: they cover over thirty medical specialties across the breadth of primary, secondary, and tertiary care. They cover each topic in-depth and cover the entire clinical workflow at the point of care – including screening, triage, diagnosis, differential diagnosis, investigations, treatment, follow-up, and healthcare maintenance. The knowledge assets work at the population health level as well – they include comprehensive population health monitoring, intelligent analysis, and early intervention that can enable better screening and

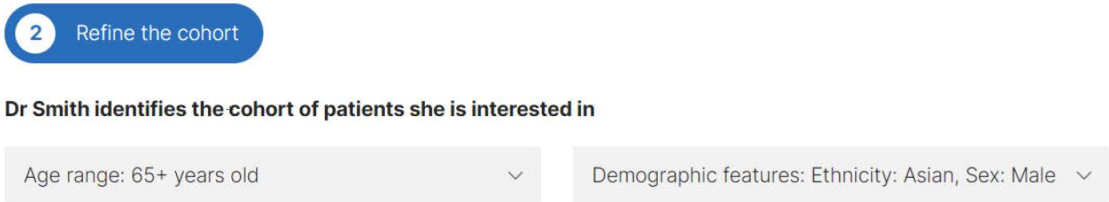
#	'674 Patent Claim	Accused Product
		diagnosis, prompt and comprehensive treatment, and primary and secondary prevention.” (BMJ White Paper at 7.)  (BMJ Presentation at 18.)
12a	extracting, using natural language processing (NLP), from a medical evidence source a plurality of diagnostic factors indicative of a medical condition and storing each of said diagnostic factors and said medical condition as its own node in a database, said medical condition being linked to said diagnostic factors,	On information and belief, BMJ Clinical Intelligence extracts, using natural language processing (NLP), from a medical evidence source a plurality of diagnostic factors indicative of a medical condition and stores each of said diagnostic factors and said medical condition as its own node in a database, said medical condition being linked to said diagnostic factors, wherein each of said diagnostic factor nodes do not include information specific to said medical condition. “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 7.) The statement indicates that BMJ extracts various data entries from “our clinical information.” BMJ’s own clinical information is a medical evidence source because BMJ is a journal and database that collect various medical evidence.

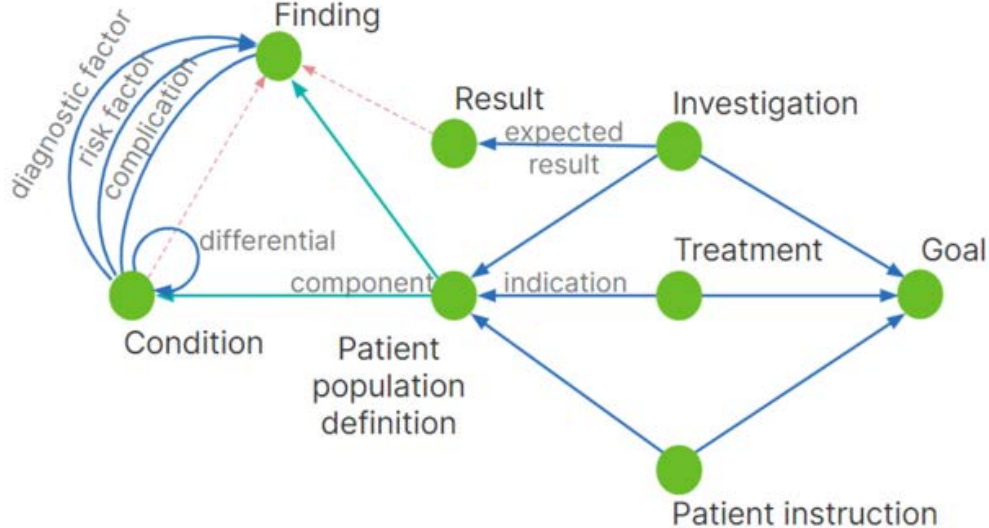
#	'674 Patent Claim	Accused Product
	wherein each of said diagnostic factor nodes do not include information specific to said medical condition;	 The diagram illustrates a workflow for processing medical guidelines. It starts with a purple circle labeled 'Guidelines' containing a gear icon. A horizontal line connects this to two blue circles. The first blue circle contains a code icon (</>) and is labeled 'Semi structured recommendations'. The second blue circle contains a grid icon and is labeled 'Tagging, coding, explicit structure'. Above the line between the circles are icons of three people, suggesting a collaborative or user-driven process. (BMJ Presentation at 29.) The above figure shows that BMJ’s extraction of various data entries uses natural language processing techniques. For example, the extractions of “Semi structured recommendations” and “tagging, coding, explicit structure” are based on NLP techniques. Turning “guidelines” into “semi-structured recommendations” is an example of the use of NLP. In the letter from BMJ’s counsel to Evidium’s counsel dated January 24, 2025, BMJ admitted, “BMJ has invested significant sums over the last 15 years in making its Best Practice content semi-structured.” Making content into semi-structured data is another example of the use of NLP. BMJ is in the business of managing medical journals and providing structured data extracted from these journals. The very process of creating databases from medical journal content, which is presented in natural language, inherently involves the use of NLP. In short, BMJ’s core business involves processing natural language (medical journals).

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure shows that the extracted data entries include “diagnostic factor 11705” and “disease 905.” These data entries are examples of “diagnostic factors” and “medication condition” recited in claim 12.

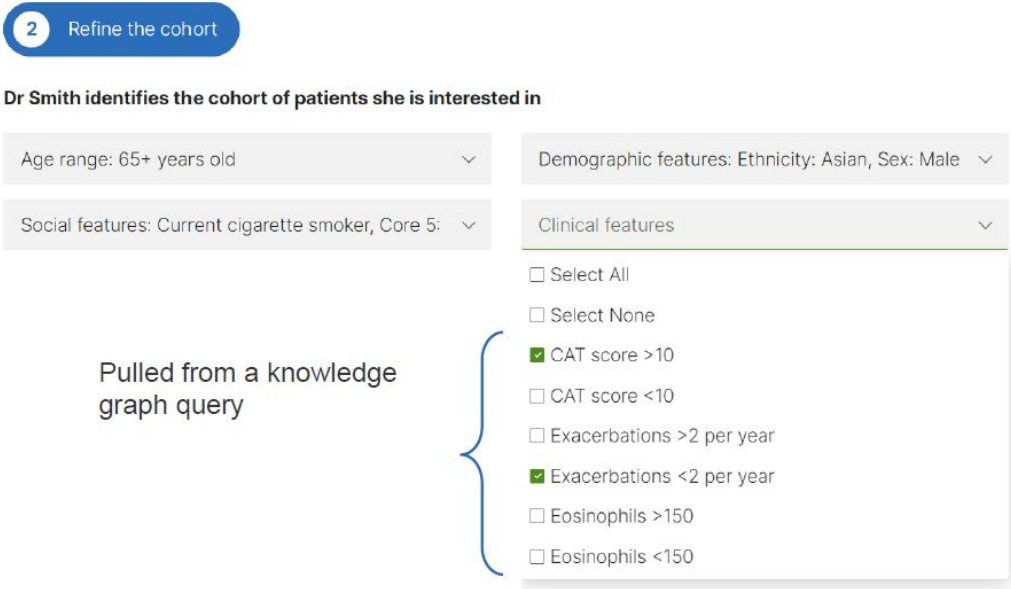
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  The diagram illustrates a Knowledge Graph Architecture with the following nodes and relationships: Condition (green circle) is connected to Finding (green circle) via three curved blue arrows labeled "diagnostic factor", "risk factor", and "complication". Condition is connected to Investigation (green circle) via a red dashed arrow labeled "differential component". Condition is connected to Patient population definition (green circle) via a green arrow labeled "component". Investigation is connected to Result (green circle) via a blue arrow labeled "expected result". Investigation is connected to Goal (green circle) via a blue arrow. Patient population definition is connected to Goal via a blue arrow labeled "indication". Patient population definition is connected to Patient instruction (green circle) via a blue arrow. Patient instruction is connected to Goal via a blue arrow. Treatment (green circle) is connected to Goal via a blue arrow. (BMJ Presentation at 30.)

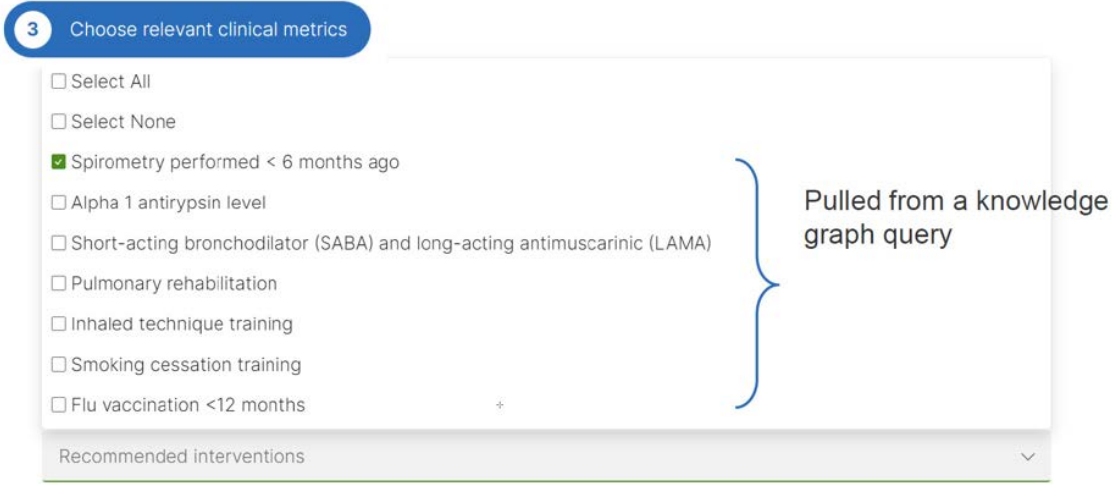
#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) The above figures (i.e., BMJ Presentation at 30, 31, and 32) about BMJ’s “knowledge graph architecture” illustrate that conditions, symptoms, and findings are connected in the knowledge graph, meeting the claim limitation “said medical condition being linked to said diagnostic factors.” In addition, the above three figures show that diagnostic factor and “condition” (or “disease”) are separate and independent nodes. The figure on page 31 shows an example of a “Finding” node as “wheezing.” Since “wheezing” is a “diagnostic factor,” the “Finding” node on page 30 is an example of “diagnostic factor” node recited in claim 12. On page 30, a “Finding” node and a “Condition” node are separate and independent nodes. BMJ’s white paper discloses, “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.” (BMJ White Paper at 11.) These statements further illustrate that BMJ deploys various NLP techniques. Given the Clinical intelligence is used also to enhance BMJ’s existing products, BMJ also likely uses

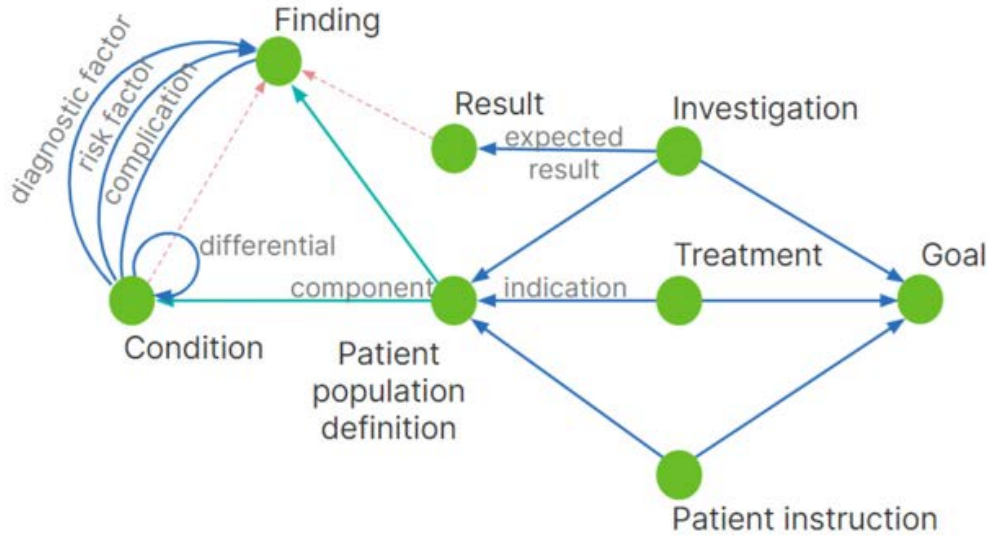
#	'674 Patent Claim	Accused Product
		large language models (LLMs) and other NLP techniques to extract and store evidence-based guidelines in its knowledge graph. BMJ's white paper also discloses, "The knowledge assets are also comprehensive: they cover over thirty medical specialties across the breadth of primary, secondary, and tertiary care. They cover each topic in-depth and cover the entire clinical workflow at the point of care – including screening, triage, diagnosis, differential diagnosis, investigations, treatment, follow-up, and healthcare maintenance. The knowledge assets work at the population health level as well – they include comprehensive population health monitoring, intelligent analysis, and early intervention that can enable better screening and diagnosis, prompt and comprehensive treatment, and primary and secondary prevention." (BMJ White Paper at 7.) These statements further indicate that BMJ's "comprehensive" "knowledge assets" include various types of data entries, including "screening," "diagnosis," "investigations," and "treatment."
12b	for at least one of said diagnostic factors, storing demographics required to indicate said medical condition on the basis of said at least one diagnostic factor in a demographics node located between said medical condition node and a node representing said at least one diagnostic factor;	For at least one of said diagnostic factors, BMJ Clinical Intelligence stores demographics required to indicate said medical condition on the basis of said at least one diagnostic factor in a demographics node located between said medical condition node and a node representing said at least one diagnostic factor.  (BMJ Presentation at 36.) The above figure shows various demographic features.

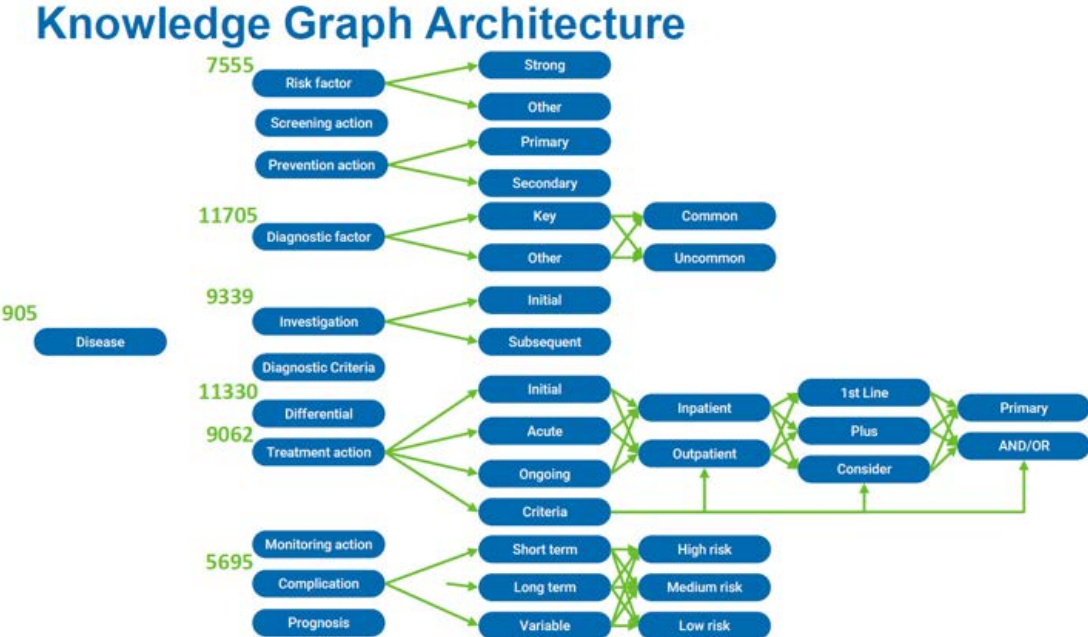
#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) The above figure on “knowledge graph architecture” shows that a demographics node (e.g., “Patient population definition”) can be between a medical condition node (e.g., “Condition”) and a node representing diagnostic factor (e.g., “Finding” or “Investigation”). In the analysis immediately below, the figure on page 31 will show that a “Finding” node is an example of “diagnostic factor” node as recited in claim 12. The figure on page 45 will show that the “Patient population definition” node on page 30 is a “demographics node” as recited in claim 12.

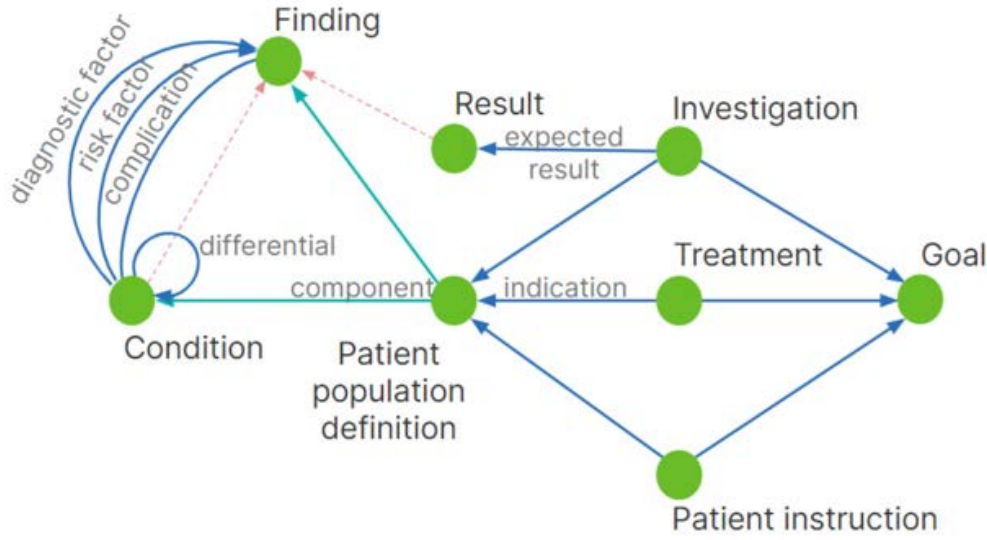
#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 31.) This figure shows an example of a “Finding” node as “wheezing,” which fits the description a “diagnostic factor” node recited in claim 12.

#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 45.) “Patient population” includes “demographics.” This demonstrates that the “Patient population definition” node on page 30 is a demographics node recited in claim 12.
12c	extracting from a medical evidence source a plurality of laboratory tests indicative of said medical condition and storing each of said laboratory tests as its own node in said database, said medical condition being linked to said laboratory tests, wherein each of said laboratory test nodes does not include information specific to said medical condition;	BMJ Clinical Intelligence extracts from a medical evidence source a plurality of laboratory tests indicative of said medical condition and storing each of said laboratory tests as its own node in said database, said medical condition being linked to said laboratory tests, wherein each of said laboratory test nodes does not include information specific to said medical condition.  (BMJ Presentation at 36.) The examples “clinical features” above, include “CAT score,” “Eosinophils” level, can be examples of laboratory tests recited in the claims. BMJ has admitted that those data are stored in the knowledge graph because those data can be “pulled from a knowledge graph query,” as illustrated in the above figure.

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 39.) Likewise, things like “Spirometry,” “Alpha 1 antitrypsin level,” are other examples of laboratory test data that are stored and can be “pulled from a knowledge graph query.”

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.) The “Investigation” node in the above figure can be an example of a laboratory test node recited in claim 12. Such “Investigation” node is independent of a “Condition” node.

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 32.) The “screen action,” “investigation,” “treatment action,” and “prognosis” are examples of nodes that can be used to store laboratory tests. As illustrated in slides 36 and 39, laboratory tests such as “Spirometry,” “Alpha 1 antitrypsin level,” “CAT score,” “Eosinophils” are stored in the knowledge graph and are likely stored in one of those examples of nodes.
12d	for at least one of said laboratory tests, storing test results required to indicate said medical condition on the basis of said at least one laboratory test in a	For at least one of said laboratory tests, BMJ Clinical Intelligence stores test results required to indicate said medical condition on the basis of said at least one laboratory test in a results node located between said medical condition node and a node representing said at least one laboratory test.

#	'674 Patent Claim	Accused Product
	results node located between said medical condition node and a node representing said at least one laboratory test; and	Knowledge Graph Architecture  (BMJ Presentation at 30.) The “Result” node in above figure is in between a “Condition” node and an “Investigation” node.
12e	matching patient data from a patient medical chart to at least one of said diagnostic factor nodes, said demographics node, at least one of said laboratory test nodes, and said results node in order to display a	BMJ Clinical Intelligence matches patient data from a patient medical chart to at least one of said diagnostic factor nodes, said demographics node, at least one of said laboratory test nodes, and said results node in order to display a result indicating a likelihood that said patient has said medical condition.

#	'674 Patent Claim	Accused Product
	result indicating a likelihood that said patient has said medical condition.	2 Refine the cohort 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 ▼ 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 -- evidence --> HS[Higher symptom burden CAT>10] SSS -- evidence --> LS[Lower symptom burden CAT<10] HS -- result --> R1[Range: operator >= Value 10] LS -- result --> R2[Range: operator < Value 10] </pre> (BMJ Presentation at 38.) The above figure shows patients are selected based on demographics and testing results.

#	'674 Patent Claim	Accused Product																														
		4 Prioririse patients 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.) The above figure shows that BMJ “prioririse [sic] patients” and “the knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic.” This indicates that patient data is matched to various nodes and entries in BMJ’s knowledge graph such that BMJ can “prioritize patients” and perform “identification of those patient records.”	Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?	Liam Smith	44	M	Y	N	✗ NO	Mason Anderson	23	M	Y	N	✗ NO	Scarlett Garcia	42	F	Y	N	✗ NO	Aiden Jones	55	M	Y	Y	✓ YES
Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?																											
Liam Smith	44	M	Y	N	✗ NO																											
Mason Anderson	23	M	Y	N	✗ NO																											
Scarlett Garcia	42	F	Y	N	✗ NO																											
Aiden Jones	55	M	Y	Y	✓ YES																											

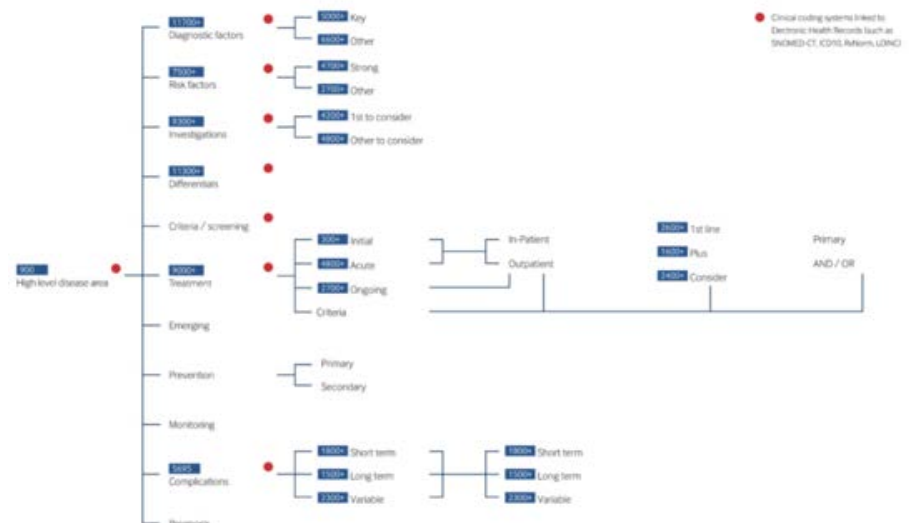
#	'674 Patent Claim	Accused Product
		Sustainable patient centred cycle (BMJ Presentation at 45.) In a “sustainable patient centred cycle” a knowledge graph leads to “new diagnosis” and also “directly drives” “decision support and analytics.” These are examples of “a result indicating a likelihood that said patient has said medical condition” as recited in the claim.

#	'674 Patent Claim	Accused Product
13	13. A method as recited in claim 12 further comprising: determining a rank of said likelihood that said patient has said medical condition by reference to a node intermediate between said medical condition node and	On information and belief, BMJ Clinical Intelligence determines a rank of said likelihood that said patient has said medical condition by reference to a node intermediate between said medical condition node and said diagnostic factor nodes that holds said rank of said diagnostic factors. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 12. For example, BMJ’s Whitepaper explains that its knowledge graph enables users to “look across the graph for relationships between diseases and other diseases, between diseases and findings,” and that BMJ’s editorial and informatics teams translate “evidence-based” clinical content, which is inherently graded by likelihood/strength of association, into the graph.

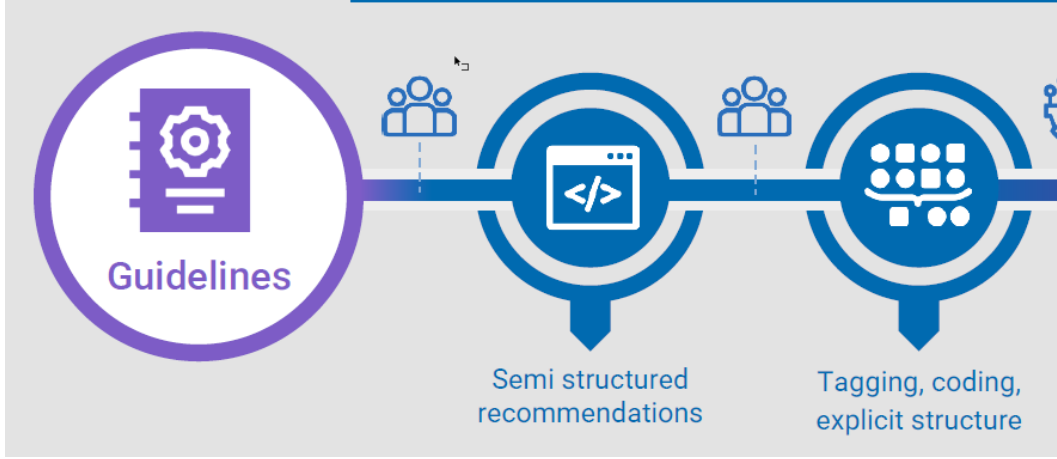
#	'674 Patent Claim	Accused Product
	said diagnostic factor nodes that holds said rank of said diagnostic factors.	Knowledge graphs allow us to reason in different ways as compared to simple rule-based approaches. A knowledge graph allows us to use semantic reasoning and look across the graph for relationships 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.) In addition, BMJ's Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition. The page shows the intermediate ranking/strength categories (e.g., "Strong"/"Other" risk factors, "1st to consider"/"Other to consider" investigations) positioned between medical condition nodes and diagnostic factor nodes. (BMJ Website: Knowledge Graph Architecture.)

#	'674 Patent Claim	Accused Product
		In addition, BMJ's case study with Sayvant demonstrates the output of a calculated likelihood/risk score (e.g., the "modified HEART score" placing a patient in a "moderate risk" category) derived by reference to such ranked diagnostic factors. 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.)

#	'674 Patent Claim	Accused Product
14	14. A method as recited in claim 12 further comprising: determining a rank of said likelihood that said patient has said medical condition by reference to a node intermediate between said medical condition node and said laboratory test nodes that holds said rank of said laboratory tests.	On information and belief, BMJ Clinical Intelligence determines a rank of said likelihood that said patient has said medical condition by reference to a node intermediate between said medical condition node and said laboratory test nodes that holds said rank of said laboratory tests. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 12. For example, BMJ's Whitepaper explains that its knowledge graph enables users to "look across the graph for relationships between diseases and other diseases, between diseases and findings," and that BMJ's editorial and informatics teams translate "evidence-based" clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ's Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition. The page shows the intermediate ranking/strength categories (e.g., "Strong"/"Other" risk factors, "1st to consider"/"Other to consider" investigations) positioned between medical condition nodes and diagnostic factor nodes.

#	'674 Patent Claim	Accused Product
		 The diagram illustrates a knowledge graph architecture for clinical coding systems. It shows a central node 'High level disease area' (1000) connected to various diagnostic factors (1000) and risk factors (1000). The factors are categorized into: Diagnostic factors (1000), Risk factors (1000), Investigations (1000), Differentiators (1000), Criteria / screening (1000), Treatment (1000), Emerging (1000), Prevention (1000), Monitoring (1000), Complications (1000), and Prognosis (1000). The 'Treatment' node is further detailed with sub-nodes: Initial (1000), Acute (1000), Ongoing (1000), and Criteria (1000). The 'Prevention' node is detailed with Primary (1000) and Secondary (1000). The 'Monitoring' node is detailed with Short term (1000), Long term (1000), and Variable (1000). The 'Complications' node is detailed with Short term (1000), Long term (1000), and Variable (1000). The 'Prognosis' node is detailed with Short term (1000), Long term (1000), and Variable (1000). The diagram also shows a flow from 'High level disease area' to 'In-Patient' and 'Outpatient' settings, which then lead to 'Total time' (1000), 'Plus' (1000), and 'Consider' (1000) nodes, ultimately leading to 'Primary AND / OR' (1000). A legend indicates that clinical coding systems linked to Electronic Health Records (such as ICD10-CM, ICD10-PCS, ICD9-CM, ICD9-PCS, ICD9-CM, ICD9-PCS) are represented by red dots. (BMJ Website: Knowledge Graph Architecture.) In addition, BMJ’s case study with Sayvant demonstrates the output of a calculated likelihood/risk score (e.g., the “modified HEART score” placing a patient in a “moderate risk” category) derived by reference to such ranked diagnostic factors.

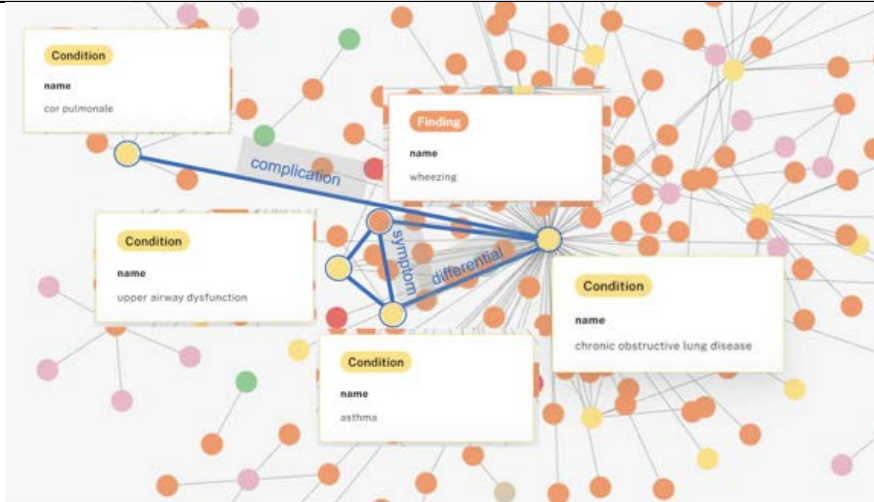
#	'674 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac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

#	'674 Patent Claim	Accused Product
15	15. A method as recited in claim 12 further comprising: performing said extracting steps using natural language processing (NLP) that is initialized using existing diagnostic factor nodes and laboratory test nodes of said database.	On information and belief, BMJ Clinical Intelligence performs said extracting steps using natural language processing (NLP) that is initialized using existing diagnostic factor nodes and laboratory test nodes of said database. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 12. In the section related to “Data Collection” (BMJ Presentation at 24), BMJ’s Presentation shows that BMJ Computable Intelligence “can prepopulate from patient’s record.” (BMJ Presentation at 27.)  (BMJ Presentation at 29.) The extractions of “Semi structured recommendations” and “tagging, coding, explicit structure” are based on natural language processing techniques. Turning “guidelines” into “semi-structured recommendations” is an example of the use of NLP.

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure illustrates that BMJ extracts “diagnostic factors” from its medical evidence sources. “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.” (BMJ White Paper at 11.) These statements show that BMJ deploys various NLP techniques. Further evidence that BMJ Clinical Intelligence uses natural language processing appears on the “Knowledge graph architecture” page of the BMJ Clinical Intelligence website, from which it is apparent that the knowledge graph has tens of thousands of terms coded to SNOMED, ICD, RxNorm, and LOINC. (BMJ Website: Knowledge Graph Architecture.)

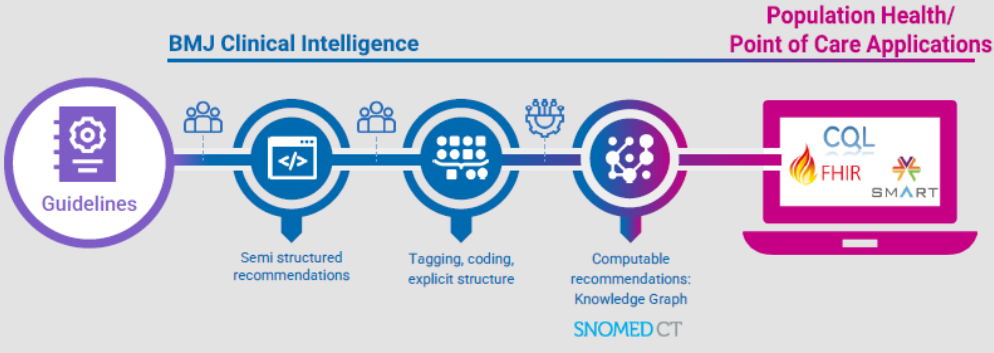
#	'674 Patent Claim	Accused Product
		In the letter from BMJ's counsel to Evidium's counsel dated January 24, 2025, BMJ admitted, "BMJ has invested significant sums over the last 15 years in making its Best Practice content semi-structured." Making content into semi-structured data is another example of the use of NLP. Additionally, BMJ hires editors that use common NLP tools to process text. BMJ job postings for Technical Editor list responsibilities that include "Formatting text using Kriya and eXtyle editing packages." <i>See, e.g.,</i> https://biotechnologyjobs.co.uk/view-job/technical-editor-fee74f32a21f. The tool eXtyle utilizes various NLP techniques, many of which are examples discussed in the '674 patent. In a job posting dated July 1, 2024, BMJ described the responsibilities included "Formatting text using xml editing packages (currently eXtyle)." 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 eXtyle) • Handling data-heavy illustrations and tables • Liaising with academic authors (BMJ Website: Job Overview.) By BMJ's own words, as shown in materials below, BMJ uses "rigorous editorial methodology" to turn its papers in clinical journals into "computable evidence in the form of a knowledge graph." (BMJ Presentation at 17.)

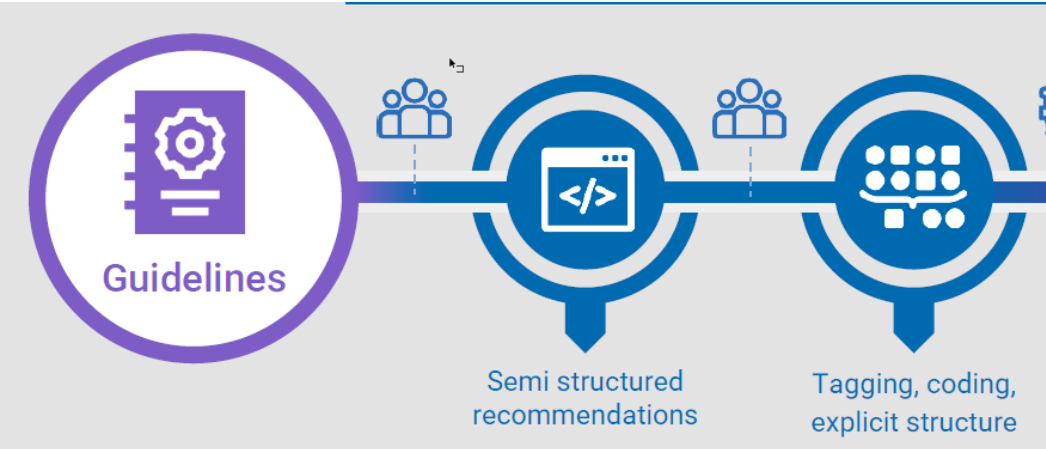
#	'674 Patent Claim	Accused Product
		BMJ is well-positioned to lead in this work. BMJ has published in the field of medicine and healthcare since 1840. It is a world-class medical publisher with decades of experience in publishing top-tier clinical journals that are known worldwide. BMJ has also been 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.) 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.) What is BMJ Clinical Intelligence? • Computable evidence in the form of a knowledge graph • Rigorous editorial methodology to ensure continuously updated, top quality, evidence-based content (BMJ Presentation at 17.) The knowledge graph in CI includes various clinical concepts indicative of a medical condition. For example, using wheezing as an example, the knowledge graph below shows various clinical concepts, such as conditions of “upper airway dysfunction,” “chronic obstructive lung disease” and the finding of “wheezing” that are indicative of the medical condition “asthma.”

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) BMJ is in the business of managing medical journals and providing structured data extracted from these journals. The very process of creating databases from medical journal content, which is presented in natural language, inherently involves the use of NLP. In short, BMJ's core business involves processing natural language (medical journals).

#	'674 Patent Claim	Accused Product
16pre	A method of determining a state of a patient, said method comprising:	To the extent the preamble is found to be limiting, BJM 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 determining a state of a patient. "BMJ Clinical Intelligence can be utilized in clinical decision support at the point of care and in population health analysis. Its knowledge graph can identify deviations in patient care, suggest interventions, and facilitate early diagnosis." (BMJ White Paper at 3.)

#	'674 Patent Claim	Accused Product
		“The knowledge assets are also comprehensive: they cover over thirty medical specialties across the breadth of primary, secondary, and tertiary care. They cover each topic in-depth and cover the entire clinical workflow at the point of care – including screening, triage, diagnosis, differential diagnosis, investigations, treatment, follow-up, and healthcare maintenance. The knowledge assets work at the population health level as well – they include comprehensive population health monitoring, intelligent analysis, and early intervention that can enable better screening and diagnosis, prompt and comprehensive treatment, and primary and secondary prevention.” (BMJ White Paper at 7.)  (BMJ Presentation at 18.)
16a	inputting a portion of a patient electronic health record (EHR) into natural language processing (NLP) to produce a plurality of diagnostic factors known to be present or absent in said patient;	On information and belief, BMJ Clinical Intelligence inputs a portion of a patient electronic health record (EHR) into natural language processing (NLP) to produce a plurality of diagnostic factors known to be present or absent in said patient. “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 7.) “Our clinical information” is a medical evidence source because BMJ is a journal and database that collect various medical evidence.

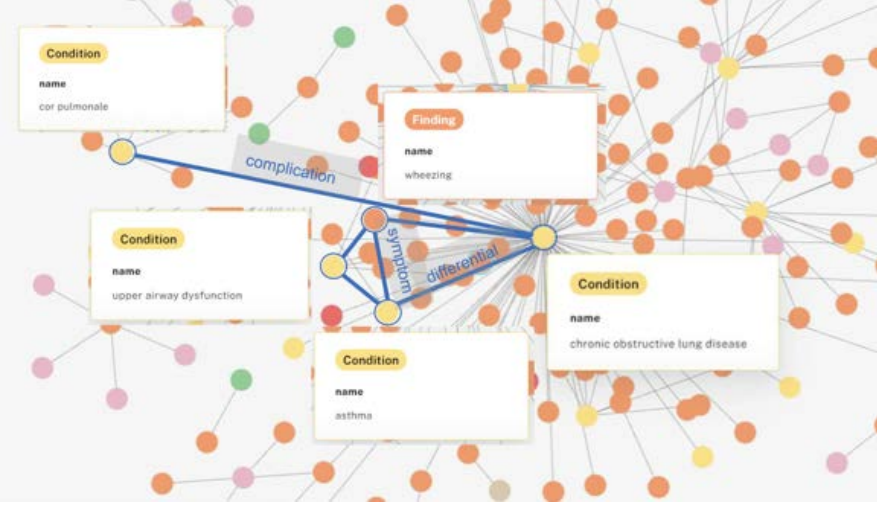
#	'674 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) In the above figure, both BMJ's own source of documents and SNOMED CT can be considered medical evidence sources. BMJ shows an example of using information drawn from the patient's record (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.)

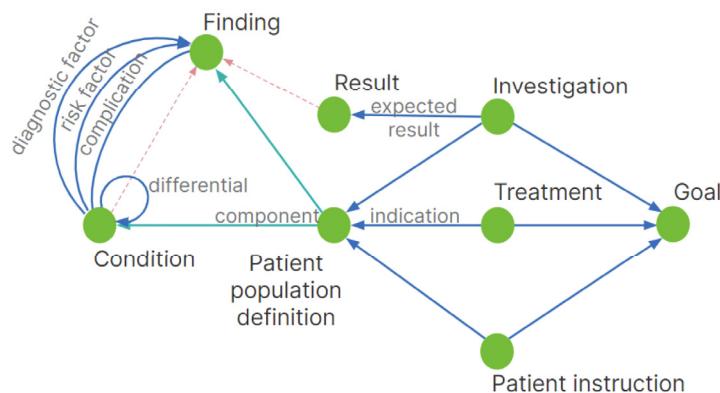
#	'674 Patent Claim	Accused Product
		Point of Care Applications FHIR Structured Data Capture SMART on FHIR app store model 5 years Electronic Patient Record 30 year maturity Supporting Patient Administration Supporting the clinician  (BMJ Presentation at 26.) In the section related to “Data Collection” (BMJ Presentation at 24), BMJ’s Presentation shows that BMJ Computable Intelligence “can prepopulate from patient’s record.” (BMJ Presentation at 27.) 

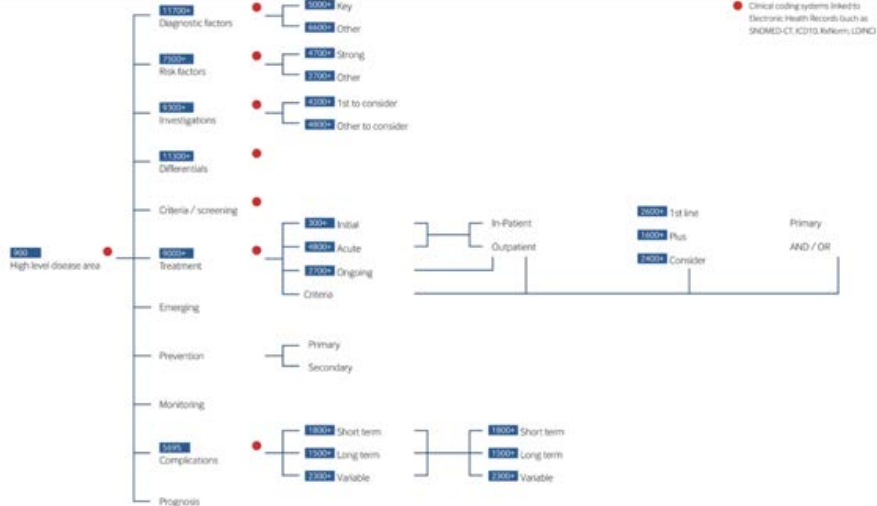
#	'674 Patent Claim	Accused Product
		(BMJ Presentation at 29.) The extractions of “Semi structured recommendations” and “tagging, coding, explicit structure” are based on natural language processing techniques. Turning “guidelines” into “semi-structured recommendations” is an example of the use of NLP. Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above figure illustrates that BMJ extracts “diagnostic factors” from its medical evidence sources. “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.” (BMJ White Paper at 11.) These statements show that BMJ deploys various NLP techniques.

#	'674 Patent Claim	Accused Product
		Further evidence that BMJ Clinical Intelligence uses natural language processing appears on the “Knowledge graph architecture” page of the BMJ Clinical Intelligence website, from which it is apparent that the knowledge graph has tens of thousands of terms coded to SNOMED, ICD, RxNorm, and LOINC. (BMJ Website: Knowledge Graph Architecture.) In the letter from BMJ’s counsel to Evidium’s counsel dated January 24, 2025, BMJ admitted, “BMJ has invested significant sums over the last 15 years in making its Best Practice content semi-structured.” Making content into semi-structured data is another example of the use of NLP. Additionally, BMJ job postings for Technical Editor list responsibilities that include “Formatting text using Kriya and eXtyle editing packages.” <i>See, e.g.,</i> https://biotechnologyjobs.co.uk/view-job/technical-editor-fee74f32a21f. The tool eXtyle utilizes various NLP techniques, many of which are examples discussed in the '674 patent. BMJ is in the business of managing medical journals and providing structured data extracted from these journals. The very process of creating databases from medical journal content, which is presented in natural language, inherently involves the use of NLP. In short, BMJ’s core business involves processing natural language (medical journals).
16b	matching said diagnostic factors to entries in a database that represent said diagnostic factors, each of said diagnostic factor entries being linked to a medical condition entry and not including information specific to said medical condition to which said each	BMJ Clinical Intelligence matches said diagnostic factors to entries in a database that represent said diagnostic factors, each of said diagnostic factor entries being linked to a medical condition entry and not including information specific to said medical condition to which said each diagnostic factor entry is linked. For example, BMJ illustrates matching diagnostic factors to “Finding” nodes which are entries in the graph database. In the example provided in the BMJ Presentation, the clinician first selects "Clinical area: COPD" as the basis for the query, matching a portion of the query to the Condition node for COPD. (BMJ Presentation at 35.) The rest of the workflow is built on that match. The system identifies the patients whose records match COPD, reporting that 12 of 75 patients have COPD or spirometry listed in their record. (BMJ Presentation at 40.)

#	'674 Patent Claim	Accused Product																														
	diagnostic factor entry is linked;	Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention. 1 Choose a clinical area Dr Smith chooses an area of clinical interest Clinical area: COPD (BMJ Presentation at 35.) The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total patients Matching Quality Metric terms Clinical description 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.) BMJ's knowledge graph also supports matching to finding nodes. The graph view shows a “Finding” node for wheezing matched to the patient factors in the input query and linked to a Condition node for asthma by a "symptom" edge. (BMJ Presentation at 31.)	Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?	Liam Smith	44	M	Y	N	NO	Mason Anderson	23	M	Y	N	NO	Scarlett Garcia	42	F	Y	N	NO	Aiden Jones	55	M	Y	Y	YES
Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?																											
Liam Smith	44	M	Y	N	NO																											
Mason Anderson	23	M	Y	N	NO																											
Scarlett Garcia	42	F	Y	N	NO																											
Aiden Jones	55	M	Y	Y	YES																											

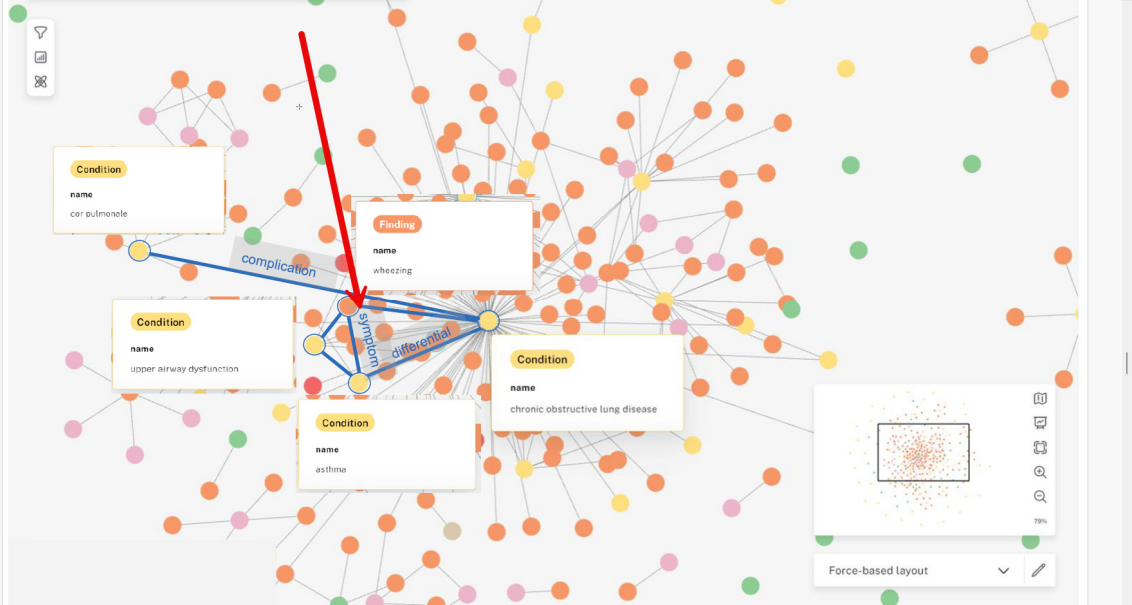
#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31.) BMJ's knowledge graph architecture diagram shows the "Investigation" node connected to the "Condition" node indirectly, through an intervening "Patient population definition" node, thus keeping the diagnostic factor investigation node separate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

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
16c	traversing a link from said each matched diagnostic factor entry to its linked medical condition and collecting a weight value indicative that said each matched diagnostic factor entry is caused by its linked medical condition;	On information and belief, BMJ Clinical Intelligence traverses a link from said each matched diagnostic factor entry to its linked medical condition and collecting a weight value indicative that said each matched diagnostic factor entry is caused by its linked medical condition. BMJ's Knowledge Graph Architecture page indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes "Strong" risk factors from "Other" risk factors and "1st to consider" investigations from "Other to consider" investigations. These categories reflect a received weighting of a likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition and these weighted categories are retrieved by traversing the links between the diagnostic factor nodes and the condition nodes. The page shows the intermediate ranking/strength categories (e.g., "Strong"/"Other" risk factors, "1st to consider"/"Other to consider" investigations) positioned between medical condition nodes and diagnostic factor nodes.

#	'674 Patent Claim	Accused Product
		 (BMJ Website: Knowledge Graph Architecture.)
16d	summing all collected weight values for each linked medical condition to produce a total weight value for each linked medical condition; and	On information and belief, BMJ Clinical Intelligence sums all collected weight values for each linked medical condition to produce a total weight value for each linked medical condition. For example, BMJ's case study with Sayvant illustrates summing collected weight values with the "modified HEART score," which combines multiple weighted patient risk factors (age, symptom characteristics, ECG findings, smoking history, family history) into a single aggregate score value associated with the patient's risk of a given medical condition (Acute Coronary Syndrome).

#	'674 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)
16e	displaying on a computing device said linked medical conditions in order of weight value.	On information and belief, BMJ Clinical Intelligence displays on a computing device said linked medical conditions in order of weight value.

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture (BMJ Presentation at 32, “diagnostic factor 11705”.) The above diagram shows that diagnostic factor is a type of data instance. Such information can be displayed as part of the knowledge graph or in any user interface.

#	'674 Patent Claim	Accused Product
		 (BMJ Presentation at 31, annotated with a red arrow that points to “symptom.”) The above figure appears to be a screenshot of a user interface. The above figure shows that a knowledge graph can be displayed to the end users. The figure shows that “symptom” and “Finding” such as “wheezing” (examples of diagnostic factors) can be shown to a person, as recited in the claim. BMJ’s case study with Sayvant shows the system outputting the patient’s calculated HEART score together with the associated risk category (e.g., “moderate risk”), which is then used to drive the recommended next diagnostic and treatment steps (i.e., the healthcare determination). The risk categories are consistent with the weighted value of the determinations as claimed.

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

#	'674 Patent Claim	Accused Product
17	17. A method as recited in claim 16	On information and belief, BMJ Clinical Intelligence displays in association with each linked medical condition its corresponding total weight value.

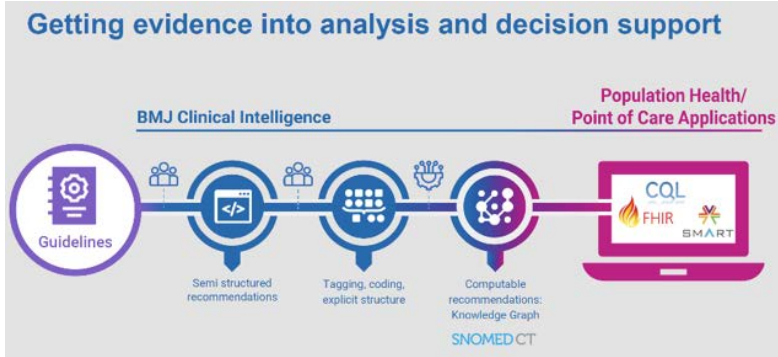
#	'674 Patent Claim	Accused Product
	further comprising: displaying in association with each linked medical condition its corresponding total weight value.	As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. BMJ's case study with Sayvant shows the patient's calculated HEART score displayed together with the identified risk category (consistent with a weight value of the corresponding linked medical condition), associating the output medical condition/diagnosis consideration with its final ranking value.

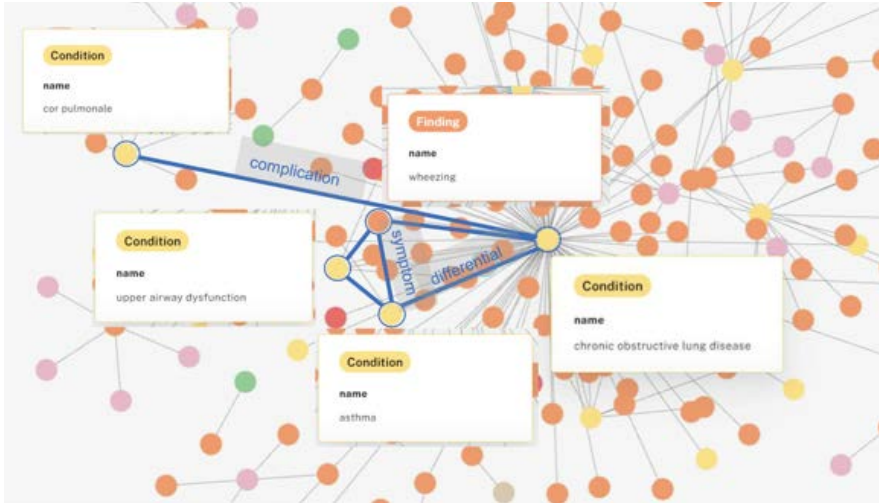
#	'674 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac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

#	'674 Patent Claim	Accused Product
18	18. A method as recited in claim 16	For each present diagnostic factor, BMJ Clinical Intelligence traverses upward in a medical ontology link found in said matched diagnostic factor entry in order to infer other diagnostic

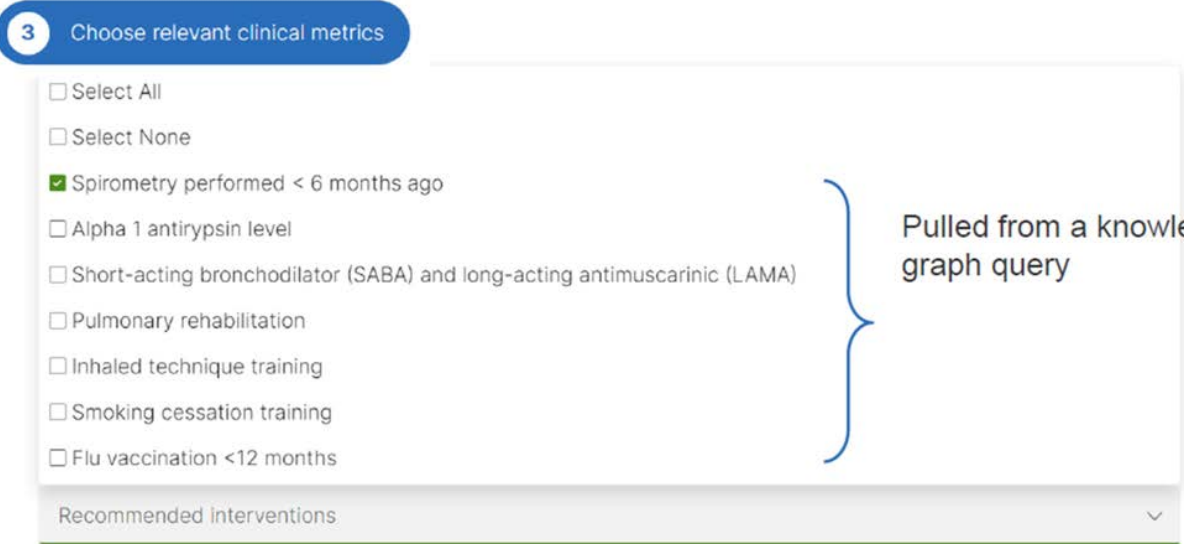
#	'674 Patent Claim	Accused Product
	further comprising: for each present diagnostic factor, traversing upward in a medical ontology link found in said matched diagnostic factor entry in order to infer other diagnostic factors present in said patient and matching these other diagnostic factors to diagnostic factor entries in said database.	factors present in said patient and matching these other diagnostic factors to diagnostic factor entries in said database. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. BMJ's knowledge graph incorporates SNOMED CT ontology links (e.g., the "wheezing" SNOMED CT hierarchy) that allow upward traversal from a specific finding to broader or related ontology concepts, consistent with inferring related diagnostic factors.

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

#	'674 Patent Claim	Accused Product
19	19. A method as recited in claim 16 wherein each said diagnostic factor entry includes at least one synonym of said diagnostic factor.	Each said diagnostic factor entry in BMJ Clinical Intelligence includes at least one synonym of said diagnostic factor. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. BMJ uses SNOMED-CT in its tagging and coding pipeline for the knowledge graph. SNOMED CT concept entries inherently include synonym descriptions as part of their standard data model. For example, the Presentation describes tagging, coding, explicit structure leading to “Computable recommendations: Knowledge Graph” with “SNOMED CT.” (BMJ Presentation at 20.) To the extent BMJ incorporates SNOMED CT concept data into its diagnostic-factor entries, those entries may include at least one SNOMED CT synonym.  (BMJ Presentation at 20.) Additionally, BMJ's own materials use both “wheeze” (in source publications) and “wheezing” (in the knowledge graph Finding node), indicating that BMJ’s editorial pipeline handles terminological variants of the same clinical concept. For example, in Publication 1, “Accessing primary care Big Data: the development of a software algorithm to explore the rich content of consultation records,” the electronic text discussed that “wheeze,” which is a diagnostic factor, is associated with “Asthma,” which is a medical condition.

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

#	'674 Patent Claim	Accused Product
20	20. A method as recited in claim 16 wherein each said	Each said diagnostic factor entry BMJ Clinical Intelligence includes a temporality attribute, a negation attribute or an experienter attribute.

#	'674 Patent Claim	Accused Product
	diagnostic factor entry includes a temporality attribute, a negation attribute or an experienter attribute.	As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ's metric list, which it states is "[p]ulled from a knowledge graph query," includes "Spirometry performed < 6 months ago" and "Flu vaccination <12 months." (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.  (BMJ Presentation at 39.) BMJ also stores negation attributes for diagnostic factor entries. For example, the presentation shows an example in which BMJ reports whether COPD and spirometry are present in a patient record, using yes and no values. (BMJ Presentation at 43.) "No" values stored in the diagnostic factor entries demonstrate negation attributes.

#	'674 Patent Claim	Accused Product																														
		6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) BMJ's case study with Sayvant explains that BMJ Clinical Intelligence is used to determine "diagnostic factors known to be present or absent in a patient" and to generate "drug-disease interaction analysis" and prioritized diagnostic prompts based on which findings are currently present in a specific patient (e.g., "Fever," "supratherapeutic INR," "AMS") versus findings that are absent or not yet known. This patient-specific presence/absence/experience tracking corresponds to the temporality, negation, and experience attributes recited in the claim.	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
Adm of influenza vaccine	Wed Jul 21 2021	✓ YES																														
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																														

#	'674 Patent Claim	Accused Product
		Initial assessment: fragmented data and cognitive load • Vitals: BP 100/60, HR 115 (A-fib), T 38.5°C (Fever). • Physical exam: Evidence of mild dehydration, lethargy. • Initial labs: Mildly elevated creatinine, INR 3.8 (supratherapeutic). Scenario WITHOUT BMJ clinical intelligence and Sayvant: The EM physician is interrupted multiple times while reviewing the chart. The critical findings (Fever/Sepsis, Supratherapeutic INR/Bleeding Risk, CKD/Drug Dosing) are present, but the Electronic Medical Record (EMR) displays them across separate screens and in different orders, requiring manual synthesis. 1. Diagnostic lag: The physician correctly orders blood cultures and a chest X-ray for the fever, following the standard Sepsis Protocol. However, in the rush, the critical bedside glucose check is delayed by 15 minutes because it is not actively flagged as an immediate action for AMS in an elderly patient with hypotension - it is a checklist item easily missed under pressure and without a real-time, context-aware prompt. (BMJ Case Study at 2.)

#	'674 Patent Claim	Accused Product
21	21. A method as recited in claim 16 further comprising: initializing said natural language processing with said entries and links of said database.	BMJ Clinical Intelligence initializes said natural language processing with said entries and links of said database. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. 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).”

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

#	'674 Patent Claim	Accused Product
22a	22. A method as recited in claim 16 wherein a	A demographics entry of said database located between one of said matched diagnostic factor entries and its corresponding linked medical condition in BMJ Clinical Intelligence includes

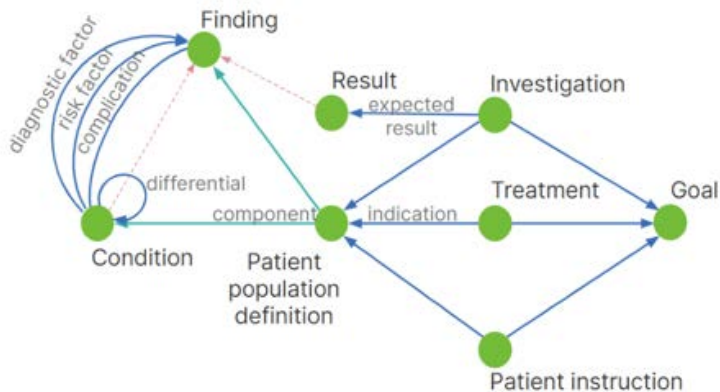
#	'674 Patent Claim	Accused Product
	demographics entry of said database located between one of said matched diagnostic factor entries and its corresponding linked medical condition includes demographics of people who exhibit said matched diagnostic factor in the context of said linked medical condition,	demographics of people who exhibit said matched diagnostic factor in the context of said linked medical condition. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16. For example, BMJ's case study with Sayvant demonstrates demographic-based risk stratification, for example using the patient's "age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history)" to calculate a "modified HEART score" placing a specific patient in a demographic-linked risk category for a medical condition. Sayvant context-aware decision support The complex array of findings - fever, AMS, hypotension, CKD, and supratherapeutic INR - is immediately processed by Sayvant's clinical intelligence platform, powered by BMJ clinical intelligence. 1. Prioritized diagnostic prompts: The system instantly filters noise and prompts for the most critical immediate actions, aligning with best practice protocols for AMS and fever: ◦ Infection source: Prompt for immediate Urine and Blood Cultures (Suspected Sepsis). ◦ Metabolic/Glucose: Immediate bedside Glucose check (critical for AMS). ◦ Toxicity/Anticoagulation: Flag the supratherapeutic INR (Risk of intracranial hemorrhage) and recommend immediate assessment for reversal based on the patient's AMS severity and fall risk. 2. Drug/Disease interaction synthesis: Sayvant cross-references the patient's CKD status with the anticipated sepsis workup. It warns against antibiotics that are contraindicated in severe renal impairment, offering a list of preferred initial antibiotic regimens that are safe. (BMJ Case Study at 4.)

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

#	'674 Patent Claim	Accused Product
		2 Refine the cohort Dr Smith identifies the cohort of patients she is interested in Age range: 65+ years old + Social features: Current cigarette smoker, Core 5: Demographic features: Ethnicity: Asian, Sex: Male Clinical features 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 --> StandardizedScore[standardized symptoms score] StandardizedScore -- evidence --> HigherBurden[Higher symptom burden CAT>10] StandardizedScore -- result --> LowerBurden[Lower symptom burden CAT<10] HigherBurden -- range --> Range1[Range: operator >= Value 10] LowerBurden -- range --> Range2[Range: operator < Value 10] </pre> (BMJ Presentation at 38.) The above figure shows patients are selected based on demographics and testing results.

#	'674 Patent Claim	Accused Product																														
		4 Prioritise patients 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.) The above figure shows that BMJ “prioritise [sic] patients” and “the knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic.” This indicates that patient data is matched to various nodes and entries in BMJ’s knowledge graph such that BMJ can “prioritize patients” and perform “identification of those patient records.”	Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?	Liam Smith	44	M	Y	N	✗ NO	Mason Anderson	23	M	Y	N	✗ NO	Scarlett Garcia	42	F	Y	N	✗ NO	Aiden Jones	55	M	Y	Y	✓ YES
Patient ID	Age	Sex	COPD?	Spirometry?	Matched to Quality Metric?																											
Liam Smith	44	M	Y	N	✗ NO																											
Mason Anderson	23	M	Y	N	✗ NO																											
Scarlett Garcia	42	F	Y	N	✗ NO																											
Aiden Jones	55	M	Y	Y	✓ YES																											

#	'674 Patent Claim	Accused Product
		Sustainable patient centred cycle (BMJ Presentation at 45.) In a “sustainable patient centred cycle” a knowledge graph leads to “new diagnosis” and also “directly drives” “decision support and analytics.” These are examples of “a result indicating a likelihood that said patient has said medical condition” as recited in the claim. Additionally the Knowledge Graph Architecture diagram in the BMJ Presentation shows a “Patient population definition” node, consistent with demographics, that is located between the diagnostic factor nodes (e.g., “Investigation,” “Treatment,” and “Patient Instruction”) the “Condition” node. (BMJ Presentation at 30.)

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
22b	said method further comprising: only traversing said link from said one matched diagnostic factor entry to its linked medical condition when information of said patient from said EHR matches said demographics in said demographics entry.	BMJ Clinical Intelligence traverses said link from said one matched diagnostic factor entry to its linked medical condition when information of said patient from said EHR matches said demographics in said demographics entry. The example given in the BMJ Presentation shows the traversal of the knowledge graph occurring when there is a match on the demographic factors input for the patient with certain diagnostic factor entries. In the example, the patient cohort is defined by “Age range: 65+ years old” and “Demographic features: Ethnicity: Asian, Sex: Male,” and only the patients meeting those criteria are carried forward into the graph driven analysis. (BMJ Presentation at 37.)

#	'674 Patent Claim	Accused Product
		<pre> graph LR A[indicated population] --> B[standardized symptoms score] A --> C[COPD] A --> D[Adult] B -- result --> E[Higher symptom burden CAT>10] B -- result --> F[Lower symptom burden CAT<10] E -- range --> G[Range: operator >= Value 10] F -- range --> H[Range: operator < Value 10] </pre> (BMJ Presentation at 37.) Additionally, BMJ’s Clinical Intelligence website states that “[d]omain and condition specific filters can be applied” to the Clinical Intelligence output. Filtering the output by condition will cause the system to only traverse the links in the knowledge graph that are applicable for that condition. Supporting Prior Authorization, available at https://clinicalintelligence.bmj.com/prior-authorization/ (last visited September 2, 2026) ("BMJ Website: Supporting Prior Authorization"). BMJ clinical intelligence takes away the burden and cost of creating and maintaining guideline-based recommendations from payors and healthcare platforms by enabling significant efficiencies. Furthermore, because of its structured format, it facilitates the creation and maintenance of executable content at scale. Domain and condition specific filters can be applied for prior authorization determinations and value-based care. This, in turn, can lead to significant efficiencies and cost savings, as well as ensuring clinical guidelines and prior authorization determinations are aligned. (BMJ Website: Supporting Prior Authorization.) BMJ’s case study with Sayvant demonstrates demographic-based risk stratification, for example using the patient’s “age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history)” to calculate a “modified HEART score” placing a specific patient in a demographic-linked risk category for a medical condition.

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

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

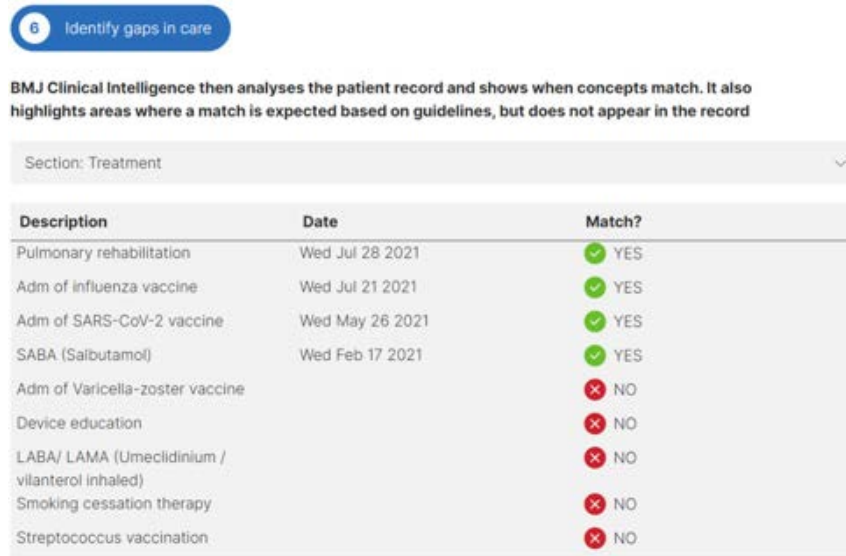
#	'674 Patent Claim	Accused Product
23	23. A method as recited in claim 16 wherein said displaying is for the	Said displaying in BMJ Clinical Intelligence is for the purpose of patient diagnosis, for an administrative medical purpose, or for a medical preauthorization. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 16.

#	'674 Patent Claim	Accused Product
	purpose of patient diagnosis, for an administrative medical purpose, or for a medical preauthorization.	BMJ lists use cases for its knowledge graph in the Presentation. The list of use cases includes helping with “diagnostic error and diagnostic delay,” “intelligent chart summarization”, and “supporting healthcare professionals in prior auth[orization].” (BMJ Presentation at 21.) Helping to avoid and detect diagnostic errors is an example of displaying information from the BMJ knowledge graph for the purpose of patient diagnosis. Using the BMJ knowledge graph to summarize patient charts is an example of displaying the output of the Clinical Intelligence system for administrative purposes. Displaying the outputs for supporting prior authorization is an example of using the BMJ Clinical intelligence for the purpose of a medical preauthorization. BMJ’s White Paper additionally explains that the knowledge graph “can be used to help accelerate the differential diagnosis reasoning process to augment the clinical reasoning of the physician and so avoid error or delay,” which is consistent with displaying output to a physician for the purpose of patient diagnosis. (BMJ White Paper at 8.) The BMJ website page for “Supporting Prior Authorization” also shows that BMJ Clinical Intelligence is used for preauthorization purposes.

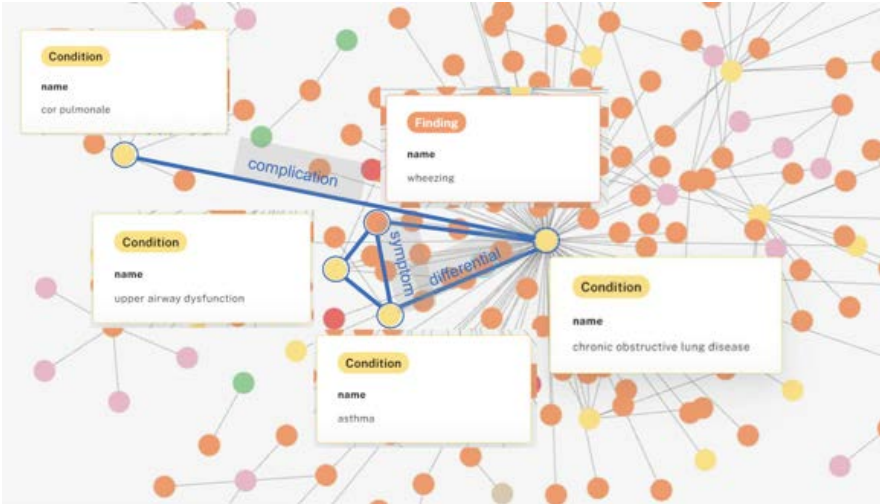
#	'674 Patent Claim	Accused Product
		Supporting prior authorization  BMJ clinical intelligence takes away the burden and cost of creating and maintaining guideline-based recommendations from payors and healthcare platforms by enabling significant efficiencies. Furthermore, because of its structured format, it facilitates the creation and maintenance of executable content at scale. Domain and condition specific filters can be applied for prior authorization determinations and value-based care. This, in turn, can lead to significant efficiencies and cost savings, as well as ensuring clinical guidelines and prior authorization determinations are aligned. (BMJ Website: Supporting Prior Authorization.)

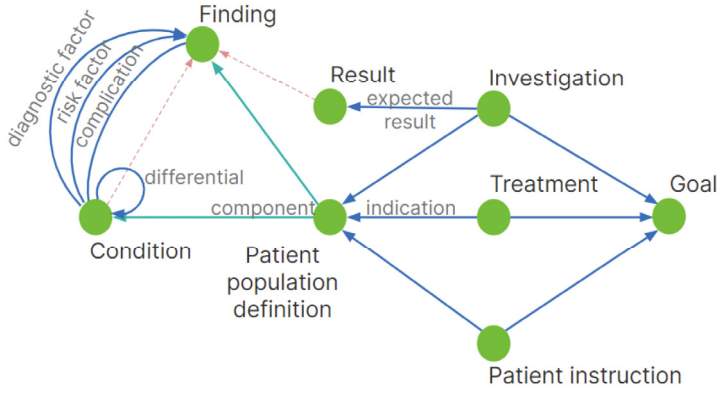
#	'674 Patent Claim	Accused Product
24pre	A method of determining next-best actions for a medical condition, said method comprising:	To the extent the preamble is found to be limiting, BJM makes, uses, sells, offers for sale, induces others to use and/or contributes to others' using systems, including BMJ Clinical Intelligence, that perform a method of determining next-best actions for a medical condition. BMJ's Presentation states that use cases of BMJ Clinical Intelligence include "directing care" and "support[ing] next best clinical action."

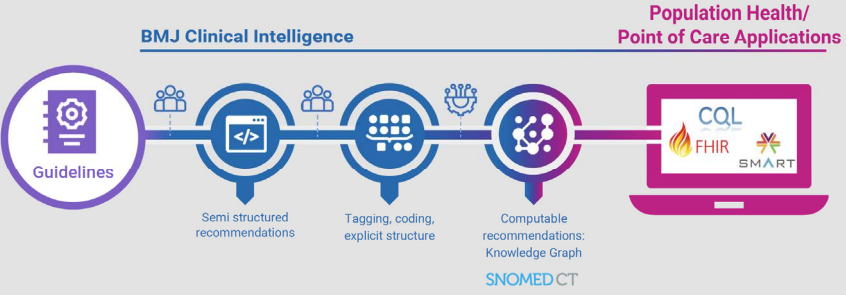
#	'674 Patent Claim	Accused Product
		Use cases - where and when we can help  Where knowledge graphs help Directing care where it is most needed - patient risk stratification - Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization - Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring - Support next best clinical action to improve outcomes - Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics - Pivoting to value based care - optimise care for a population - Support allocation of care resources to most in need of care At the point of care for individuals - Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth - Stratify populations into positives, greys and negatives for clinical review. AI deployment - Evidence derived data for training, testing and monitoring AI models - Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) BMJ's website also indicates that the BMJ system determines "next best action at the point of care." The point of care page is headed "Next best action at the point of care," and states that Clinical Intelligence provides "the evidence-based 'next best action'" and thereby "reduces unwarranted clinical variation." Next Best Action at the Point of Care, available at https://clinicalintelligence.bmj.com/point-of-care/ (last visited September 2, 2026) ("BMJ Website: Next Best Action at the Point of Care").
24a	for each medical condition of a patient having a probability greater than a threshold of being present in said patient, performing the following identifying all known diagnostic factor entries in a database that each represent a	On information and belief, for each medical condition of a patient having a probability greater than a threshold of being present in said patient, BMJ Clinical Intelligence performing the following identifying all known diagnostic factor entries in a database that each represent a diagnostic factor known to be present or absent in said patient, each known diagnostic factor entry being linked to a medical condition entry in said database representing said each medical condition but not including information specific to said each medical condition. BMJ states that "BMJ Clinical Intelligence analyses the patient record and shows when concepts match." For example the BMJ Presentation at slide 43 shows a column that indicates with a "yes" or a "no" whether certain diagnostic factors match the patient record. (BMJ Presentation at 43.)

#	'674 Patent Claim	Accused Product																														
	diagnostic factor known to be present or absent in said patient, each known diagnostic factor entry being linked to a medical condition entry in said database representing said each medical condition but not including information specific to said each medical condition;	This is consistent with identifying known diagnostic factor entries that represent diagnostic factors known to be present or absent in a patient.  The screenshot shows a button labeled "Identify gaps in care". Below it, a text box states: "BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record". A dropdown menu is set to "Section: Treatment". The table below shows the results: <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.) 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.)	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
Adm of influenza vaccine	Wed Jul 21 2021	✓ YES																														
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																														

#	'674 Patent Claim	Accused Product																														
		Dr Smith uses the knowledge graph to design her own Quality Metric, employing real-time performance dashboards to highlight patients in need of intervention. 1 Choose a clinical area Dr Smith chooses an area of clinical interest Clinical area: COPD ▼ (BMJ Presentation at 35.) The knowledge graph drives the identification of those patient records that mention COPD and/or spirometry by matching to Quality Metric concepts and logic 12 patients have COPD or Spirometry listed in their record 16% out of 75 total patients Matching Quality Metric terms ← → Clinical description 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
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																											

#	'674 Patent Claim	Accused Product
		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.)  (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.)

#	'674 Patent Claim	Accused Product
		Knowledge Graph Architecture  (BMJ Presentation at 30.)
24b	identifying all unknown diagnostic factor entries in said database that each represent an unknown diagnostic factor not known to be present or absent in said patient, each unknown diagnostic factor entry being linked to said medical condition entry;	BMJ Clinical Intelligence identifies all unknown diagnostic factor entries in said database that each represent an unknown diagnostic factor not known to be present or absent in said patient, each unknown diagnostic factor entry being linked to said medical condition entry. BMJ has established one or more APIs (CQL, FHIR, SMART) for its knowledge graph that allow a software application to integrate with the knowledge graph to access the medical condition node and known and unknown factor nodes to generate a healthcare determination.

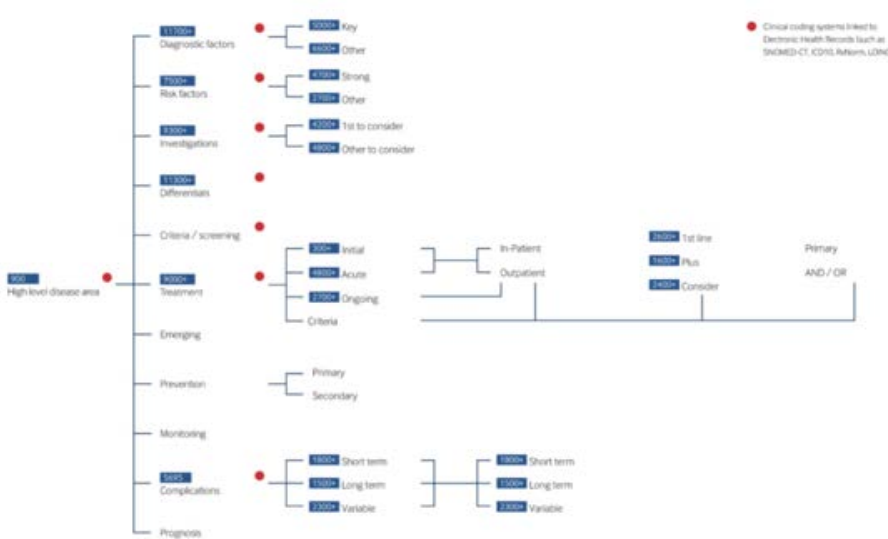
#	'674 Patent Claim	Accused Product
		Getting evidence into analysis and decision support  (BMJ Presentation at 20.) Use cases - where and when we can help Where knowledge graphs help Directing care where it is most needed - patient risk stratification - Support step up/ step down care, care at home, remote monitoring Intelligent chart summarization - Simplify and streamline condition specific chart summary for the clinician Reduce unwarranted variation in investigation, treatment, and monitoring - Support next best clinical action to improve outcomes - Reduce low value tests and procedures Diagnostic error and diagnostic delay When knowledge graphs help Population health analytics - Pivoting to value based care - optimise care for a population - Support allocation of care resources to most in need of care At the point of care for individuals - Evidence derived data to suggest next best actions to the clinician Supporting healthcare professionals in prior auth - Stratify populations into positives, greys and negatives for clinical review. AI deployment - Evidence derived data for training, testing and monitoring AI models - Heuristically supervised learning BMJ Clinical Intelligence (BMJ Presentation at 21.) BMJ 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

#	'674 Patent Claim	Accused Product																														
		possibility but that the concept could not be confirmed by the current patient record. (BMJ Presentation at 43.) 6 Identify gaps in care BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record Section: Treatment <table> <tr> <th>Description</th><th>Date</th><th>Match?</th></tr> <tr> <td>Pulmonary rehabilitation</td><td>Wed Jul 28 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of influenza vaccine</td><td>Wed Jul 21 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of SARS-CoV-2 vaccine</td><td>Wed May 26 2021</td><td>✓ YES</td></tr> <tr> <td>SABA (Salbutamol)</td><td>Wed Feb 17 2021</td><td>✓ YES</td></tr> <tr> <td>Adm of Varicella-zoster vaccine</td><td></td><td>✗ NO</td></tr> <tr> <td>Device education</td><td></td><td>✗ NO</td></tr> <tr> <td>LABA/ LAMA (Umeclidinium / vilanterol inhaled)</td><td></td><td>✗ NO</td></tr> <tr> <td>Smoking cessation therapy</td><td></td><td>✗ NO</td></tr> <tr> <td>Streptococcus vaccination</td><td></td><td>✗ NO</td></tr> </table> (BMJ Presentation at 43.) 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 consisted with outputting an unknown diagnostic factor that is not yet known to be present or absent in the patient, as claimed.	Description	Date	Match?	Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES	Adm of influenza vaccine	Wed Jul 21 2021	✓ YES	Adm of SARS-CoV-2 vaccine	Wed May 26 2021	✓ YES	SABA (Salbutamol)	Wed Feb 17 2021	✓ YES	Adm of Varicella-zoster vaccine		✗ NO	Device education		✗ NO	LABA/ LAMA (Umeclidinium / vilanterol inhaled)		✗ NO	Smoking cessation therapy		✗ NO	Streptococcus vaccination		✗ NO
Description	Date	Match?																														
Pulmonary rehabilitation	Wed Jul 28 2021	✓ YES																														
Adm of influenza vaccine	Wed Jul 21 2021	✓ YES																														
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																														

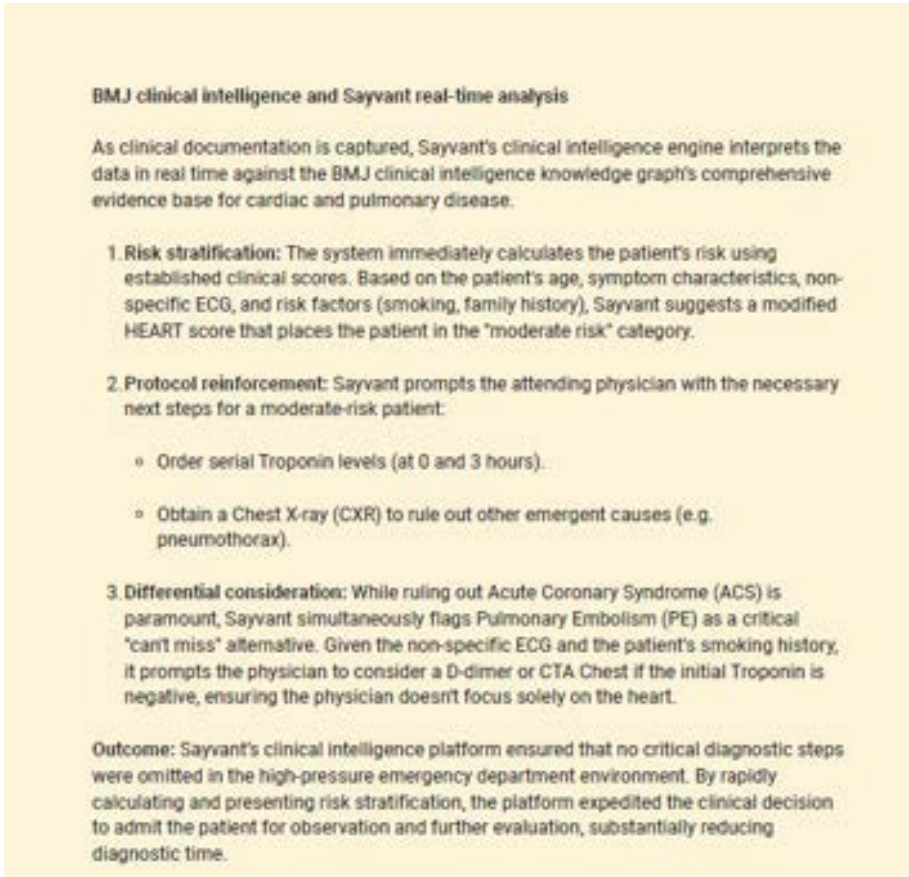
#	'674 Patent Claim	Accused Product
		Knowledge graphs also give us the ability to project the entire patient data set against the graph and to get a better picture of the patient – a more comprehensive picture than what might emerge from using forward and backward chaining through rule bases. When we 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.) BMJ's case study with Sayvant shows the system recommending “further blood tests and a specific imaging protocol” (e.g., “[s]erum lactate” and “CT [a]ngiography”) to test for diagnostic factors not yet known to be present or absent in the patient, each of which is linked to the flagged medical condition (e.g., Acute Mesenteric Ischemia) in BMJ's knowledge graph.

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

#	'674 Patent Claim	Accused Product
		(BMJ Case Study at 6.) The Presentation also states that the BMJ Clinical Intelligence “highlights areas where a match is expected based on guidelines, but does not appear in the record,” which indicates that the BMJ system identifies factor entries linked to a medical condition but not in the current patient record. (BMJ Presentation at 43.) BMJ Clinical Intelligence then analyses the patient record and shows when concepts match. It also highlights areas where a match is expected based on guidelines, but does not appear in the record (BMJ Presentation at 43.)
24c	identifying a rank of each unknown diagnostic factor entry that indicates likelihood that said corresponding unknown diagnostic factor indicates said medical condition, said rank being stored in a database entry link between said unknown diagnostic factor entry and said medical condition entry; and	On information and belief, BMJ Clinical Intelligence identifies a rank of each unknown diagnostic factor entry that indicates likelihood that said corresponding unknown diagnostic factor indicates said medical condition, said rank being stored in a database entry link between said unknown diagnostic factor entry and said medical condition entry. For example, BMJ’s Whitepaper explains that its knowledge graph enables users to “look across the graph for relationships between diseases and other diseases, between diseases and findings,” and that BMJ’s editorial and informatics teams translate “evidence-based” clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ’s Knowledge Graph Architecture page indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes “Strong” risk factors from “Other” risk factors and “1st to consider” investigations from “Other to consider” investigations. These categories reflect a received weighting of a likelihood that a given clinical concept (diagnostic

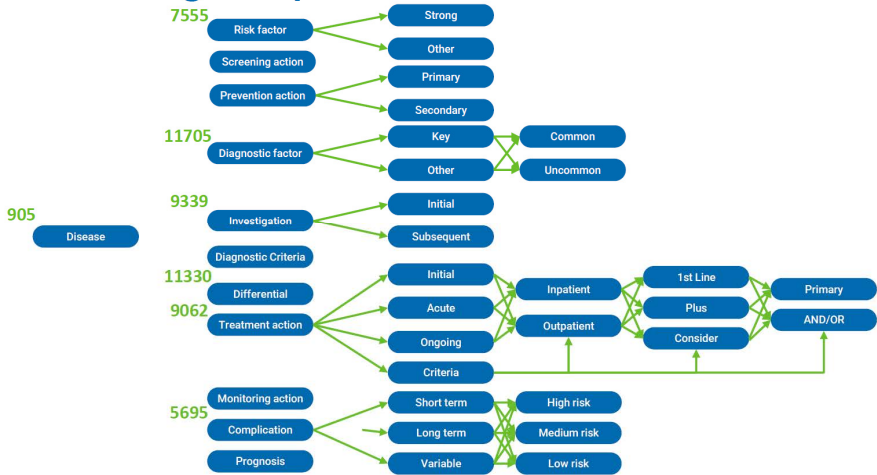
#	'674 Patent Claim	Accused Product
		factor) is indicative of the associated medical condition and these weighted categories are retrieved by traversing the links between the diagnostic factor nodes and the condition nodes. The page shows the intermediate ranking/strength categories (e.g., “Strong”/“Other” risk factors, “1st to consider”/“Other to consider” investigations) positioned between medical condition nodes and diagnostic factor nodes.  (BMJ Website: Knowledge Graph Architecture.) BMJ’s case study with Sayvant illustrates ranked recommendations for unconfirmed diagnostic factors, for example prioritizing “serial Troponin levels” as the primary test while flagging a “D-dimer or CTA Chest” as a secondary, lower-priority unknown factor to investigate if the primary test is negative — reflecting a likelihood ranking associated with each unknown factor relative to the medical condition.

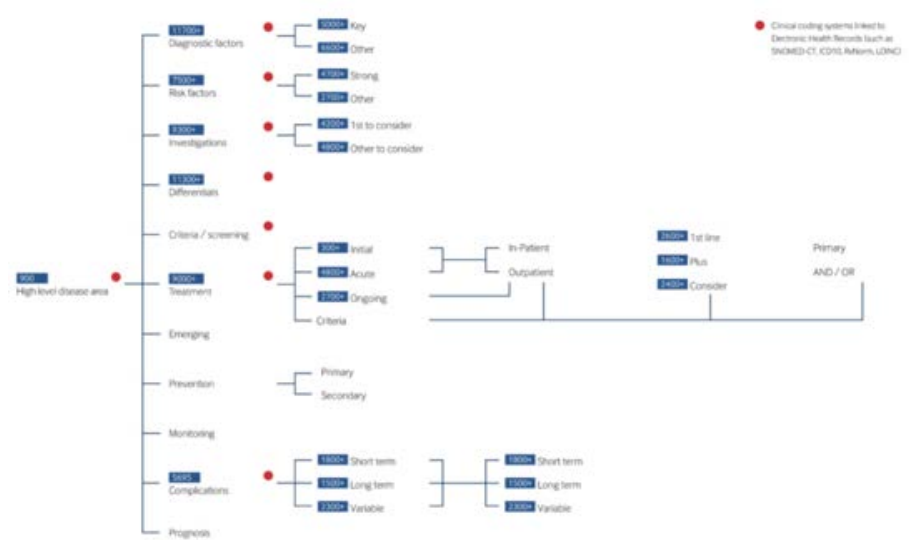
#	'674 Patent Claim	Accused Product
		BMJ clinical intelligence and Sayvant real-time analysis As clinical documentation is captured, Sayvant's clinical intelligence engine interprets the data in real time against the BMJ clinical intelligence knowledge graph's comprehensive evidence base for cardiac and pulmonary disease. 1. Risk stratification: The system immediately calculates the patient's risk using established clinical scores. Based on the patient's age, symptom characteristics, non-specific ECG, and risk factors (smoking, family history), Sayvant suggests a modified HEART score that places the patient in the "moderate risk" category. 2. Protocol reinforcement: Sayvant prompts the attending physician with the necessary next steps for a moderate-risk patient: ◦ Order serial Troponin levels (at 0 and 3 hours). ◦ Obtain a Chest X-ray (CXR) to rule out other emergent causes (e.g. pneumothorax). 3. Differential consideration: While ruling out Acute Coronary Syndrome (ACS) is paramount, Sayvant simultaneously flags Pulmonary Embolism (PE) as a critical "can't miss" alternative. Given the non-specific ECG and the patient's smoking history, it prompts the physician to consider a D-dimer or CTA Chest if the initial Troponin is negative, ensuring the physician doesn't focus solely on the heart. Outcome: Sayvant's clinical intelligence platform ensured that no critical diagnostic steps were omitted in the high-pressure emergency department environment. By rapidly calculating and presenting risk stratification, the platform expedited the clinical decision to admit the patient for observation and further evaluation, substantially reducing diagnostic time. (BMJ Case Study at 8.)
24d	displaying on a computing device said unknown diagnostic factors corresponding to said unknown diagnostic	On information and belief, BMJ Clinical Intelligence displays on a computing device said unknown diagnostic factors corresponding to said unknown diagnostic factor entries in association with said each medical condition in order of said rank of said each unknown diagnostic factor. BMJ's case study with Sayvant shows the system outputting (i.e., displaying) ranked, prioritized next diagnostic steps (e.g., ordering troponin testing before recommending a D-dimer or CTA

#	'674 Patent Claim	Accused Product
	factor entries in association with said each medical condition in order of said rank of said each unknown diagnostic factor.	Chest) associated with the relevant medical condition, consistent with outputting unknown diagnostic factors in order of rank to produce a healthcare determination (i.e., the next-best action).  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.)

#	'674 Patent Claim	Accused Product
25	25. A method as recited in claim 24 further comprising: identifying said unknown diagnostic factor entries by traversing down through said database from said each medical condition entry and disregarding said known diagnostic factor entries.	BMJ Clinical Intelligence identifies said unknown diagnostic factor entries by traversing down through said database from said each medical condition entry and disregarding said known diagnostic factor entries. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 24. For example, BMJ's case study with Sayvant shows the system traversing from a flagged medical condition (e.g., Acute Mesenteric Ischemia) down to diagnostic factors not yet confirmed for that patient (e.g., serum lactate level, CTA findings), while excluding diagnostic factors already known to be present or absent (e.g., the patient's already-known atrial fibrillation and abdominal exam findings).

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

#	'674 Patent Claim	Accused Product
26	26. A method as recited in claim 24 wherein said rank of said each unknown diagnostic factor entry is located within a factor group entry located between said medical condition entry and said each unknown diagnostic factor entry.	On information and belief, said rank of said each unknown diagnostic factor entry in BMJ Clinical Intelligence is located within a factor group entry located between said medical condition entry and said each unknown diagnostic factor entry. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 24. The BMJ Presentation shows that the knowledge graph architecture includes groupings of nodes related to diagnostic factors, consistent with a factor group entry. For example, the “diagnostic factor” entry in the below architecture diagram is linked to “key” and “other” entries which indicate ranking of the diagnostic factor because “key” diagnostic factors may be ranked as more related to the condition than “other” diagnostic factors. Knowledge Graph Architecture  (BMJ Presentation at 32.) For example, BMJ’s Whitepaper explains that its knowledge graph enables users to “look across the graph for relationships between diseases and other diseases, between diseases and findings,”

#	'674 Patent Claim	Accused Product
		and that BMJ's editorial and informatics teams translate “evidence-based” clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ’s Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes “Strong” risk factors from “Other” risk factors and “1st to consider” investigations from “Other to consider” investigations — categories that reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition.  (BMJ Website: Knowledge Graph Architecture.)

#	'674 Patent Claim	Accused Product
		BMJ stores the rank of each unknown factor node located between the medical condition node and the unknown factor node. 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.)

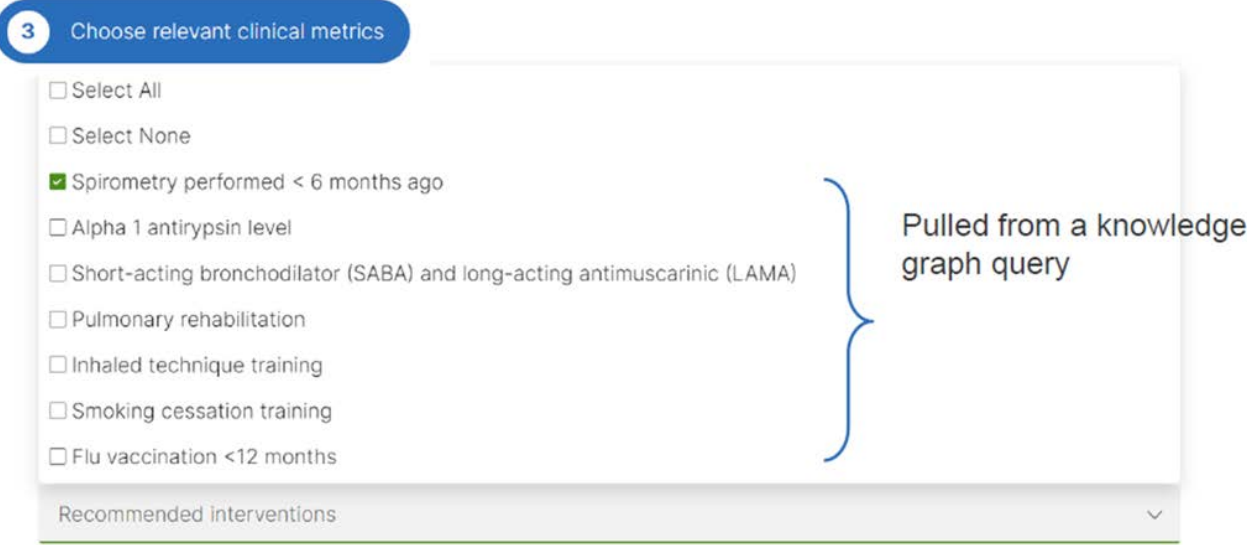
#	'674 Patent Claim	Accused Product
27	27. A method as recited in claim 24 further comprising: for each known diagnostic factor, traversing upward in a medical ontology link found in said identified known diagnostic factor entry in order to infer other known diagnostic factors present in said patient.	For each known diagnostic factor, BMJ Clinical Intelligence traverses upward in a medical ontology link found in said identified known diagnostic factor entry in order to infer other known diagnostic factors present in said patient. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 24. BMJ's knowledge graph incorporates SNOMED CT ontology links that allow upward traversal from a known finding to infer related diagnostic factors present in the patient.

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

#	'674 Patent Claim	Accused Product
28	28. A method as recited in claim 24 wherein each said known and unknown diagnostic factor entry includes at least one synonym of said known and unknown diagnostic factor.	Each said known and unknown diagnostic factor entry in BMJ Clinical Intelligence includes at least one synonym of said known and unknown diagnostic factor. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 24. BMJ Clinical Intelligence knowledge graph uses inferential or “semantic reasoning” to identify related clinical findings. BMJ explains that “[k]nowledge graphs allow us to reason in different ways as compared to simple rule-based approaches” and that its knowledge graph uses “semantic reasoning” to examine relationships “between diseases and findings” and “between findings and other findings.” BMJ’s identification of reasoning from one finding to another finding is consistent with using inferential reasoning to identify a diagnostic factor and returning that diagnostic factor as the result, because BMJ represents diagnostic factors as Finding nodes in its knowledge graph. 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.) BMJ further explains that the knowledge graph encodes relationships between conditions and findings and enables the clinical intelligence system to “look at a disease and find all of its neighbors and comorbidities” and determine how those connected concepts relate to the patient’s overall state. The graph can also identify a fact, procedure, or investigation that the system expects to find but that is absent from the patient data. These descriptions indicate traversal through connected clinical concepts to infer additional medically relevant information.

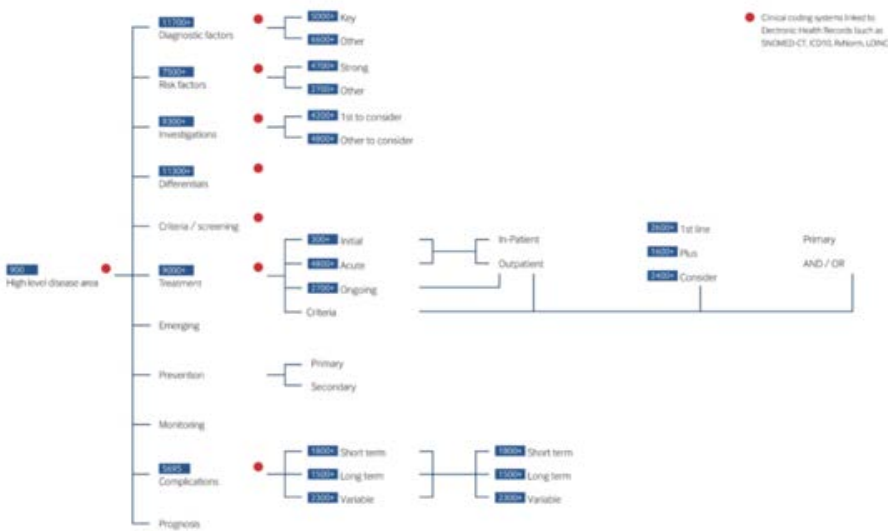
#	'674 Patent Claim	Accused Product
		Today knowledge representation at scale is best done as a knowledge graph. This is true of other industries, not just healthcare. Knowledge graphs are supporting drug discovery in the pharmaceutical industry, fraud detection in the banking industry, and even space exploration at NASA. In this case, our knowledge graph is a set of diseases and findings that are all interrelated 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.)

#	'674 Patent Claim	Accused Product
29	29. A method as recited in claim 24 wherein each said known and unknown diagnostic factor entry includes a temporality attribute, a negation attribute or an experiencer attribute.	Each said known and unknown diagnostic factor entry in BMJ Clinical Intelligence includes a temporality attribute, a negation attribute or an experiencer attribute. As discussed above, BMJ Clinical Intelligence comprises a computer system as recited in claim 24. The clinical metrics BMJ includes in the knowledge graph include time qualifiers. For example, BMJ's metric list, which it states is "[p]ulled from a knowledge graph query," includes "Spirometry performed < 6 months ago" and "Flu vaccination <12 months." (BMJ Presentation at 39.) These time qualifiers are examples of temporality attributes, as claimed.

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

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

#	'674 Patent Claim	Accused Product
30	30. A method as recited in claim 24 wherein traversing said database from one of said unknown diagnostic factor entries to a first one of said medical conditions produces a	On information and belief, traversing said database from one of said unknown diagnostic factor entries to a first one of said medical conditions in BMJ Clinical Intelligence produces a first rank for said one of said unknown diagnostic factor entries in the context of said first medical condition which is different from a second rank produced by traversing from said one of said unknown diagnostic factor entries to a second one of said medical conditions. As discussed above, BMJ Clinical Intelligence comprises a method as recited in claim 24.

#	'674 Patent Claim	Accused Product
	first rank for said one of said unknown diagnostic factor entries in the context of said first medical condition which is different from a second rank produced by traversing from said one of said unknown diagnostic factor entries to a second one of said medical conditions.	For example, BMJ's Whitepaper explains that its knowledge graph enables users to “look across the graph for relationships between diseases and other diseases, between diseases and findings,” and that BMJ's editorial and informatics teams translate “evidence-based” clinical content, which is inherently graded by likelihood/strength of association, into the graph. 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.) In addition, BMJ's Knowledge Graph Architecture page further indicates ranked or weighted categories of relationships because, for example, BMJ distinguishes “Strong” risk factors from “Other” risk factors and “1st to consider” investigations from “Other to consider” investigations — categories that reflect a received rank indicating the likelihood that a given clinical concept (risk factor or investigation) is indicative of the associated medical condition. 

#	'674 Patent Claim	Accused Product
		(BMJ Website: Knowledge Graph Architecture.) For example, traversing BMJ's knowledge graph from an unknown factor node to one medical condition produces a rank different from traversing from that same unknown factor node to a second medical condition. BMJ's case study with Sayvant illustrates this directly: 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."

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