



MEDICOMP
S Y S T E M S

The Quippe Data Model

Driving quality patient care and improving
provider experience, at the point of care

The Quippe® Data Model is different – and that is by design. Quippe, with the Data Model and the Clinical Engine, was built to be used at the point of care by the clinician to care for the patient. Historically, EHRs were created as billing tools, not clinical tools; so existing data models were built to capture billing data, which is fairly straightforward. Capturing clinical data, in addition to billing, regulatory, and interoperable data, is not as simple. Therefore, the data model must be different.

BENEFITS

- Optimizes coding across standard vocabularies and terminologies within a single platform
- Informs clinicians with clinically relevant, problem-specific information at the point of care
- Extends utility and increases ROI of the EHR as a clinical tool that supports patient care across the continuum
- Ensures accurate, complete clinical data that drives billing, quality measures, HCCs and care coordination
- Frees clinicians to focus on treating patients within their natural workflow
- Improves operational efficiency and productivity

Take the following scenario: a patient is in the clinic for a follow up on his type 2 diabetes. Prior to seeing this patient, the provider wants to quickly review relevant patient history, test results, and trends, focusing on the key indicators for managing the diabetes: A1C, glucose and microalbumin levels, thyroid function, and annual eye and foot exams.

Given a chart full of information and disconnected data throughout, how is that done quickly and efficiently? How can the provider identify which data is relevant for diabetes type 2? How quickly can a treatment plan be put into place for any new symptoms or conditions?

The provider is focused on the patient and the clinical data necessary to treat the patient – not the claims data, not what is needed for quality measures, billing, or other regulatory programs.

This is where the Quippe Data Model truly stands out, and what makes it a powerful alternative to other models. The focus is on the clinical data for the provider and the patient. With clinical data captured, structured, and standardized, the administrative and reporting data is included, too.

Quippe's clinical concepts are mapped to standard terminologies and code sets, including SNOMED®, ICD-10, CPT®, RxNorm®, LOINC®, and DSM-5®, enabling advanced analytics, seamless billing, and interoperability.

With clinical concepts at its core, Quippe goes beyond terminology standards to create clinical relevancies and connections that help guide precise, accurate patient care.



Concepts as Clinical Data

Good clinical data supports activities across all functional areas of patient care –

- Reviewing the patient chart - problem list, medication list, patient history, lab tests and results, radiology procedures
- Capturing physical exam findings, review of systems (ROS), allergies, and social determinants of health (SDOH)
- Sending and receiving of consults and referrals
- Billing and regulatory compliance - E&M, quality measures, HCC risk scoring

Clinical data drives all of these things.

Seymour Patients

Male, DOB: 5/19/1956, Age: 68

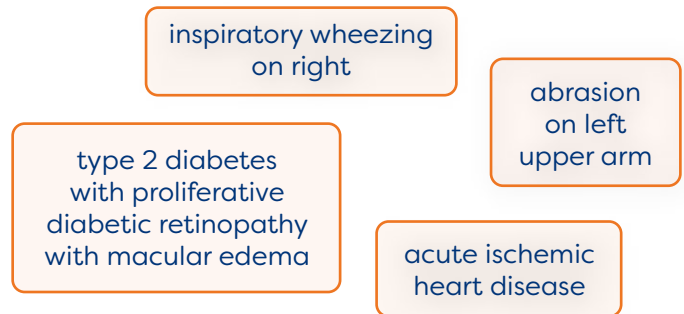
Active Problems

Type 2 diabetes mellitus w/o complication
Essential Hypertension
CAD

Medications

Metformin HCl

Concepts are the data at the core of the Quippe Data Model. Concepts are clinical in nature and have meaning in and of themselves – words and phrases clinicians use to describe the patient visit.



Narrative Backed By Data

In the patient chart, the provider sees phrases with clinical meaning that support how they think and work. Quippe concepts include associated synonyms, so findings can be located using a variety of phrases.

Each concept is associated with properties that qualify those clinical phrases, making them actionable both for the provider as they treat the patient and within the broader ecosystem of care.

352589 - type 2 diabetes mellitus without complication

Id	352589
termtype	6 - Disease
parentId	30480
specialty	Endocrinology
riskcode	3: Moderate Risk
complex	3: Moderate Complexity

ICD-10-CM	E11.9 Type 2 diabetes mellitus without complications
SNOMED CT	313436004 Type II diabetes mellitus without complication (disorder)
Quippe positive string	type 2 diabetes mellitus without complication

The Quippe Concept

Quippe includes over 413,000 clinical terms or concepts, organized into six domains. Each concept is identified with a unique ID that never changes. Concepts have pre-defined properties that provide the additional data needed for coding, billing, reporting, organizing, and filtering the data in a chart and note.

Once a concept is added to the patient chart it becomes a 'finding,' as it represents the patient's current condition. Finding properties allow the clinician to further characterize the concept based on the patient at that point in time.

- S Symptoms
- H History
- P Physical Examination
- T Tests
- D Diagnoses, Syndromes & Conditions
- R Therapy

Concept Properties

- **Section and Group ID:** Where to place the concept in the documentation
- **Specialty Codes:** Cardiology, Endocrinology, Infectious Disease, etc.
- **Severity or Complexity** of the clinical concept, used in E&M coding
- **Risk Codes:** Level of medical/surgical risk to the patient, used in E&M coding
- **Code Mappings:** Maps concept to other standard terminologies (SNOMED, ICD-10, CPT, etc.)
- **Phrases:** The statement is either asserted or denied based on the patient status

Concept of Cough:

Id	247
Risk & Complexity	1
Group Id	G1880 = pulmonary symptoms
ICD-10 Map	R05.9
SNOMED CT Map	49727002

Finding Properties

- **Onset:** Date and time the finding occurred
- **Value:** Numeric or alphanumeric value for findings with a measurement, and normal range for the term
- **Unit:** Unit of measurement in which the Value is expressed
- **Prefix:** Finding qualifier that is prefixed to the finding (assessment of, history of, allergy to, etc.)
- **Modifier:** Descriptor that provides additional meaning and/or context (e.g. mild, moderate, severe, etc.)
- **Notation:** Free text note that can be added to the finding

Finding of Cough:

Prefix	recurrent history of
Modifier	moderate-severe
Status	worsening
Duration	2 months

Cough in Documentation:

Pulmonary Symptoms: recurrent history of moderate-severe cough for 2 months - worsening

Meaningful, Diagnosis-Driven Clinical Data

In the patient chart, relevant findings, tests, and medications are all based on current or suspected diagnoses. Each is represented by a concept within Quippe.

While the diagnosis and other clinical concepts in Quippe can stand alone, they become very meaningful as a collection of statements about a patient's health at a point in time within the chart. The structure and characteristics of the data help tell the story.

Problem-Focused Patient Data

Clinical concepts have links or maps to standard terminologies, but they also link between each other, with a diagnosis at the center.

The original premise of Medicomp was to present relevant clinical concepts to the provider for any diagnosis or patient presentation. As part of the Data Model, each diagnosis has a list of associated terms, along with metadata as to how relevant – or closely tied – a finding is to the diagnosis.

Let's look at diabetes mellitus, type 2. The concept is linked to 326 other clinical concepts within Quippe, across the six domains.

Links to the core diagnosis concept include the hallmark findings associated with the diagnosis and tracking of type 2 diabetes – A1C, glucose, excessive thirst, and polyuria.

The diabetes mellitus, type 2 concept also links to findings associated with treatment and management of the disease – annual eye and foot exam, healthy diet, and appropriate medications.

These additional properties or links between diagnoses and their related symptoms, tests, therapies, exam findings, and history findings create a powerful, problem-oriented experience for the provider.

The provider has the tools at hand to focus on and capture what is relevant to the patient, today.

Cross-Domain Linkages

The concepts below represent just a sample from hundreds of direct links to the type 2 diabetes concept in Quippe

30480
type 2
diabetes
mellitus

- S** 391 recent weight gain
- S** 528 polyuria
- S** 282541 excessive thirst
- P** 6067 obese
- T** 12736 hemoglobin A1C %
- T** 22616 thyroid function panel - with TSH
- T** 28614 urine microalbumin
- T** 320726 plasma glucose fasting
- R** 303099 dilated retinal eye exam
- R** 347140 semaglutide
- R** 42018 education about diabetes
- R** 43337 exercise program

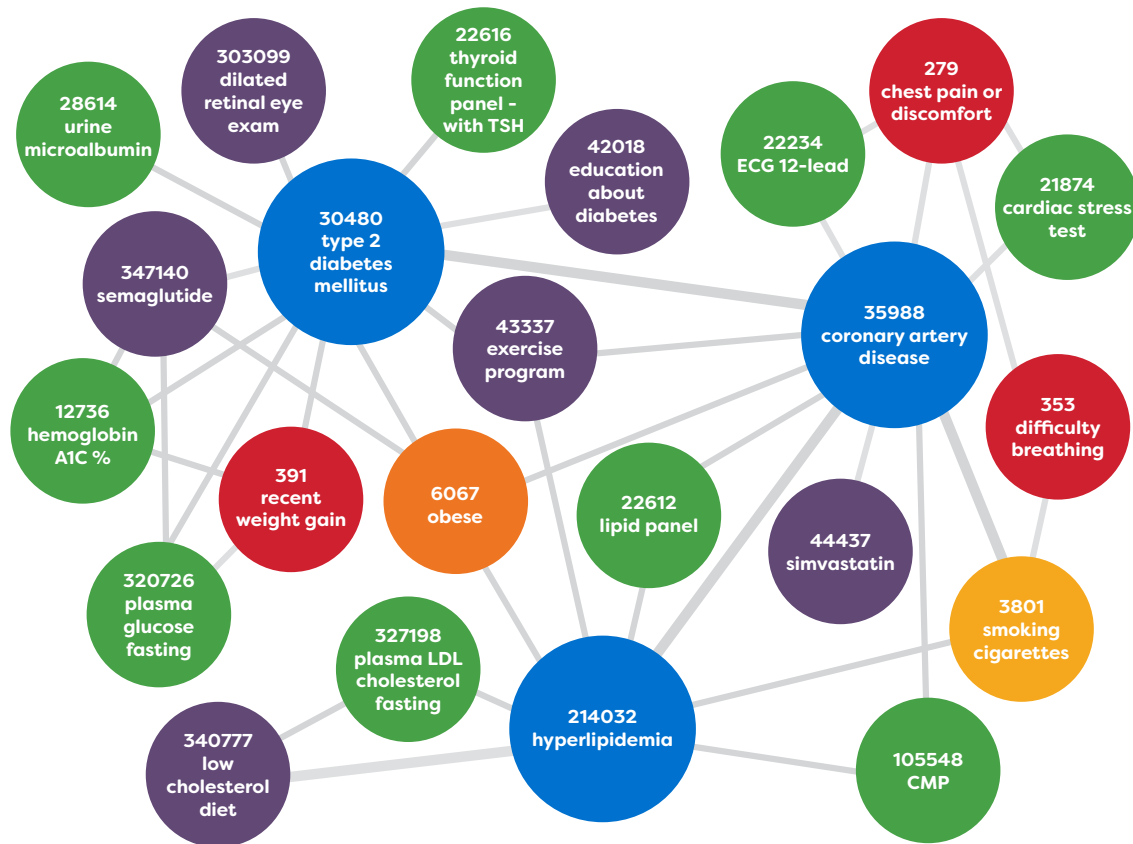
The Engine Behind the Scenes

The Quippe Clinical Data Engine is a web-ready engine designed to identify and interpret disorganized, complex arrays of medical data, and transform it into actionable information and clinical insights at the point of care and beyond.

The Quippe Engine accomplishes this by analyzing the hundreds of millions of links among the clinical concepts, also taking into account the patient's age and sex.

It then assists in documentation by prompting the provider with medical findings and clinical protocols associated with findings already documented in the chart.

The illustration below shows how diseases like diabetes, coronary artery disease, and hyperlipidemia are connected through a complex web of related and interdependent concepts across a range of domains and functions.



This illustration represents only a subset of linkages to these three diagnoses within Quippe's Clinical Data Engine

During the patient exam, for example, the provider might record a new diagnosis of hyperlipidemia, along with a plan to address this new complication on top of the patient's type 2 diabetes.

Quippe highlights related clinical concepts for each problem, prompting documentation that is both human-readable, and in support of compliance with quality measures, HCC, and E&M.

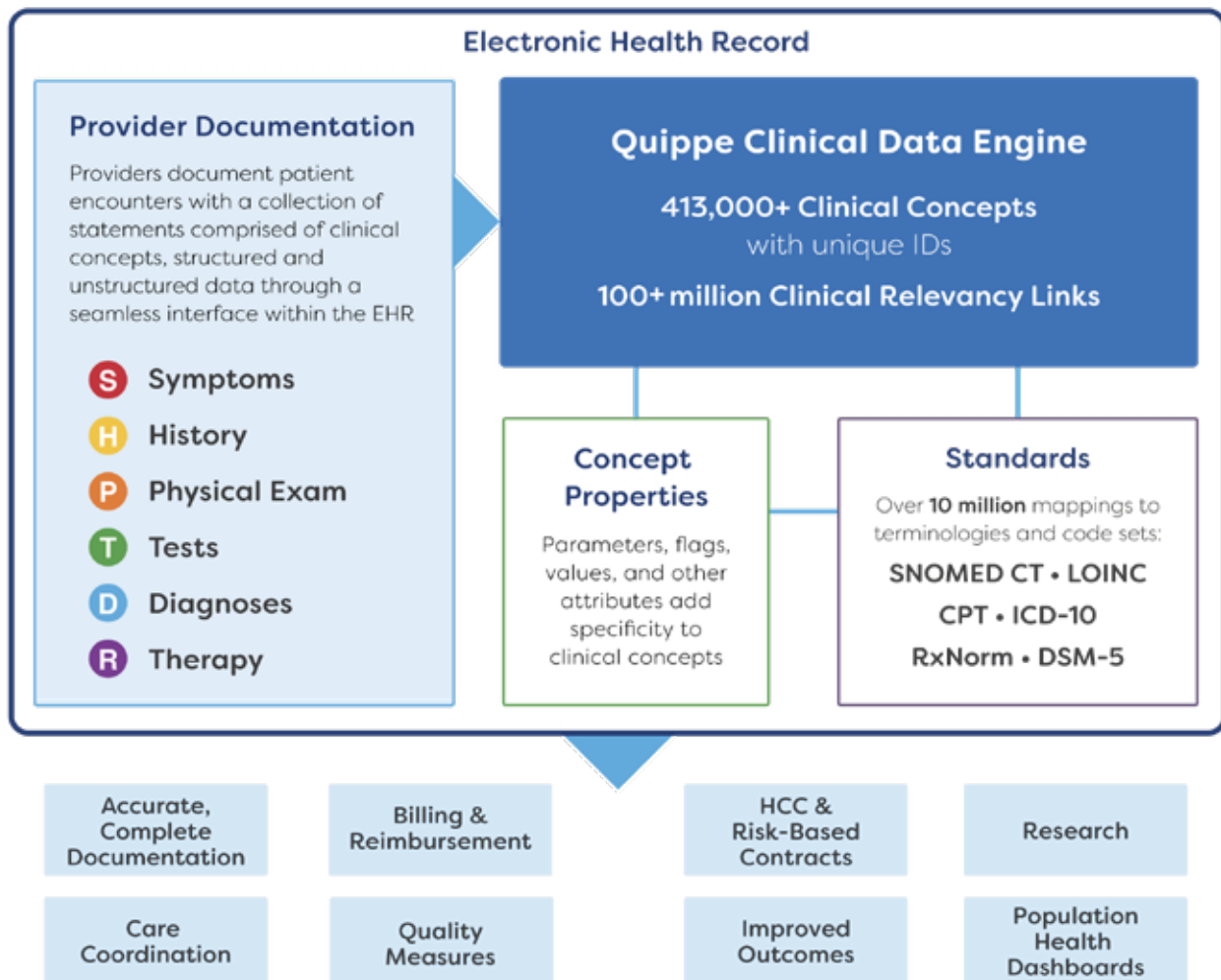
Data That Emerges Naturally

In most EHR applications, patient data is captured using a combination of fixed forms, drop-downs, navigation trees, and free text areas. The final documentation for the patient visit is then generated from this data. The clinician must review the final form – a time-consuming extra step.

Quippe takes a different approach to data capture and documentation – one in which providers document a patient encounter within their natural workflow, producing a human-readable note backed by coded and standardized structured data. With Quippe there is no disconnect between the inputs and the outputs for the final documentation of a patient visit.

This is possible because of the Quippe Data Model. Clinical concepts organized around patient problems comprise the note and become part of the patient's chart. The concept properties and relationships drive the multitude of activities needed to support the clinician thought process, patient-provider interactions, and downstream billing and regulatory requirements. Structured, coded data collected about the patient becomes the basis for trending, historical review, regulatory compliance, billing, and population health.

It's not just writing a note – it's adding to the overall clinical history of the patient.



Got the Data – Now What?

Quippe allows clinicians to seamlessly document, filter, and view patient- and problem-specific data in a natural and meaningful way – and, without requiring the clinician to keep up-to-date with codes and regulations.

Through its unique concept structure and relevancy links, the Quippe Data Model supports point-of-care tools that drive quality patient care, while at the same time optimizing coding and compliance.

Surface Clinically Connected Concepts

Getting back to our patient with diabetes, the provider is reviewing the patient’s chart in **Quippe Clinical Lens**, which presents a summary view of the patient’s clinical history.

Most patient charts have a tremendous amount of data – how does the clinician find what is useful in all of that data? Through the relevancy links that are associated with Quippe’s diagnosis concepts.

By selecting type 2 diabetes in the problem list, Clinical Lens highlights all related findings in the chart. The abbreviated illustration on the right shows how concepts clinically related to diabetes are highlighted across domains, from medications and past exam findings, to labs, imaging, orders, procedures, therapies, and history.

Before stepping into the exam room, the provider can quickly get a full clinical picture of this patient’s diabetes to date:

Which meds have been prescribed?

When was the last podiatry exam?

How recent is the A1C and CBC?

Are there any other items of concern in the chart?

Maybe a high cholesterol?

Quippe’s Clinical Data Engine organizes the complex web of clinical relevancies and connections across domains to present a unified view of problem-focused information found throughout the chart. This view of the chart organizes the data into consumable chunks and then further filters it by problem, providing pertinent information when it is needed, improving efficiency and informing the clinician.

Highlight Relationships

Quickly filter problem-specific views of summary items in the patient chart with **Quippe Clinical Lens**

Seymour Patients

Male, DOB: 5/19/1956, Age: 68

Active Problems

essential hypertension	9/10/2023
type 2 diabetes mellitus	3/04/2022

Medications

nonsteroidal anti-inflammatory	9/10/2023
lisinopril	9/10/2023
influenza split virus vaccine	9/10/2023
metformin HCl	3/04/2022
glipizide	1/15/2019
glyburide	1/15/2019

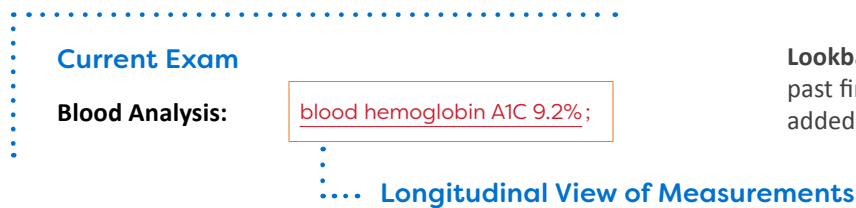
ROS & Exam

referred by Dr. Patel	10/22/2022
pain interfering with usual activity	9/10/2023
recent weight gain	9/10/2023
patient accompanied by wife	1/15/2019

Monitor Concept History and Trends

In the course of treating the patient, the provider needs to see trends and historical data related to the patient's diagnoses.

Quippe's **Lookback** feature underlines findings within the current chart to indicate one or more prior occurrences of that concept. The relevant past findings are highlighted to easily reference in real-time.



Adding an A1C test to our current encounter alerts the provider of past results in the chart. A longitudinal view of prior A1C measurements is instantly available to inform decision-making.

To drill down further, Quippe's **Trends** view shows results over time, and graphs values to visualize trends.

Lookback provides a view of past findings for any concept added to the note.

3/2/2023: 9.2%	8/30/2022: 7.2%	2/2/2022: 7%	8/12/2019: 7%
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Streamline Provider Workflow with Diagnostically Related Data

When the provider is assessing the patient, they're thinking of possible meds, treatments, and follow up actions to manage the disease.

Our patient has diabetes, so the provider can request the list of findings related to diabetes – no need to build out problem-specific content, which is time consuming.

If something comes up unexpectedly, like a high cholesterol level, and a new diagnosis is needed, the provider can add the diagnosis and again, Quippe can present a list of related findings to assist with documentation of the diagnosis and the treatment plan.

Too much data to review? Quippe uses the diagnostic links to highlight just the related findings in the note, based on the selected problem.

The provider can look at the big picture as well as focus on one specific disease, all in the same note, all at the point of care.

Sources
Diabetes Mellitus Type 2
Coronary Artery Disease

Review of Systems

Systemic Symptoms: recent weight gain;

Cardiovascular Symptoms: chest pain: localized, radiating:chest pain radiating to right arm; feels like tightness, crushing, dull;

Pulmonary Symptoms: difficulty breathing;

Physical Exam

Standard Measurements: patient obese;

Assessment

coronary artery disease; hyperlipidemia; type 2 diabetes mellitus;

Tests

Urinalysis: urinalysis: routine urinalysis without microscopic examination; urinalysis results;

Blood Analysis: blood hemoglobin A1C; comprehensive metabolic panel; lipid panel:fasting plasma glucose; plasma fasting LDL cholesterol level;

Laboratory-Based Chemistry: urine microalbumin level;

Laboratory Studies: 12-lead electrocardiogram; cardiac stress test;

Therapy

Basic Management Procedures and Services: low cholesterol diet; institute prescribed exercise program;

Counseling and Education

Other: patient education about diabetes;

Support Clinical Quality Measures

Quippe's **Quality Measures** service makes it easier to track and complete CQMs within the workflow.

Quippe analyzes code mappings and patient data to tell the clinician which measures (among those pre-selected by the provider) are applicable to this patient.

It also indicates whether those applicable CQMs have been met. If a CQM is incomplete, a pop-up form facilitates data entry to meet the measure before the patient leaves the room.

At reporting time, Quippe produces the Quality Reporting Document Architecture (QRDA) documents required for submission.

Quality Measures

⚠️ 2 Incomplete

⏸️ 0 Pending

✅ 3 Complete

Calculate E&M Codes

Based on the concepts in the patient note, their properties, and the calculator parameters, Quippe's **E&M Calculator** suggests an Evaluation and Management (E&M) CPT code that can be added directly to the documentation.

The **Analysis Tab** shows how the code was calculated using the risk and complexity properties of the findings in the documentation.

Suggested Level

99213 Established outpatient, medically appropriate H&P, low level decision making, 20-29 minutes

Analysis Tab

Risk and Complexity of Problems		Minimal	Limited	Multiple	Extensive
ⓓ	essential hypertension	Risk Level: 3, Chronic			
ⓓ	type 2 diabetes mellitus without complication	Risk Level: 3, Chronic			
Complexity of Data		Minimal	Limited	Moderate	Extensive
Ⓣ	urinalysis	Complexity: 3 (1)			
Management Risk		Minimal	Low	Moderate	High
Ⓡ	metformin HCl	Risk Level: 2			
Ⓣ	urinalysis	Risk Level: 1			
Ⓡ	diabetic diet	Risk Level: 0			
Ⓡ	ordered patient education about diabetes	Risk Level: 0			
Ⓡ	ordered patient education about a home blood glucose monitor	Risk Level: 0			



Identify Care Gaps and Calculate RAF Scores for HCC

For Medicare Advantage plans (and other value-based care plans), the Hierarchical Condition Category (HCC) model uses risk scores to determine the annual reimbursement for a patient. The risk calculation is based on the patient problem list and diagnoses in the notes (ICD-10 codes), along with a requirement to fully document the disease and the treatment plan.

When interacting with the patient and/or their chart, it is helpful for the clinician to know which ICD-10 codes are considered HCC diagnoses. In Quippe, applicable diagnoses and problems included in an HCC category are marked, providing additional information to the clinician to support consistent monitoring, evaluation, assessment, and treatment.

Quippe calculates the HCC Risk Adjustment Factor (RAF) score for the patient and estimates the potential reimbursement. The risk score is based on ICD-10 codes on the problem list and documented in the current year, in addition to patient demographics and links between certain diagnoses.

Quippe also provides suggested actions to address which diagnoses have not been documented during the plan year, which are not included on the problem list, and any need for more detailed coding, along with other actions.

To get credit for a diagnosis, it must be documented appropriately and completely. Quippe’s **Documentation Scoring** uses both the E&M algorithm and the diagnostic links, along with the Clinical Engine, to verify – in real-time – that each problem has been documented appropriately and includes a treatment plan to support the reimbursement.

Quippe indicates when the documentation is not sufficient to satisfy the compliance requirements so that the clinician can address any gaps.

Active Problems

- D essential hypertension
- D type 2 diabetes mellitus without complication ^{HCC}
- D emphysema ^{HCC}
- D congestive heart failure ^{HCC}

HCC Calculation

Component	
Age 65-69 Years	0.308
HCC19 Diabetes without Complication	0.105
HCC85 Congestive Heart Failure	0.331
Interaction HCC85 and HCC19	0.121
Raw Score	0.865
Normalized Raw Score	0.722
Normalized Risk Score for Existing Enrollee	0.722

Issues

- i The active problem list contains **emphysema** which has not been documented in the current reporting period

📄 Actions ▼

Documentation Scoring

- ⚠️ congestive heart failure
- ✅ type 2 diabetes mellitus without complication

Extendability Beyond the Note

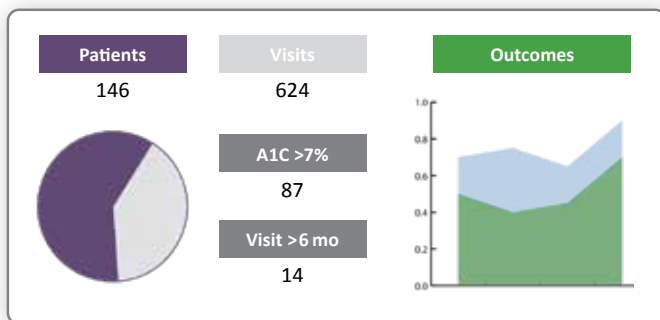
Quippe helps extend the usability and ROI of EHRs and other clinical systems. By leveraging the Data Model, you can design new data uses to meet organizational objectives and enhance workflows. Here are a few of the ways data generated using Quippe can add value.

Dynamic Population Dashboards

Dashboards and visualizations enhance the utility of patient population data. By connecting Quippe-generated data to analytics tools, you can define the metrics and track real-time insights to drive decision-making.

Views from the population level down to the individual patient might show:

- Outcomes measures
- Disease state and severity indexes
- Provider-level statistics
- Patient visit metrics and insights
- Medications prescribed
- Documentation completeness and efficiency



This dynamic view into the whole dataset can prompt a deeper level of analysis. Instead of asking “Which labs are missing?” the conversation becomes “Why hasn’t this patient had a visit for over 6 months?”

Referral Correspondence

After the visit, providers often need to initiate a referral or follow-up with a referring physician. Quippe enables a rapid turnaround of referral letters by populating the provider’s statements and accompanying data from the patient’s record into organization-built correspondence templates.

When providers are within the same system, such as a hospital with clinic sites, colleagues can see documentation on their patient as soon as it’s done, meaning the referring provider and the patient can get constant feedback.

Patient Instructions and Education

Using the diagnosis and other clinical phrases as prompts, appropriate and personalized instructions can be generated with Quippe, such as a diabetic diet and exercise program in our patient’s treatment plan. And, with Quippe’s language translation service that information can be provided in the patient’s preferred language. Materials can be instantly printed or shared electronically through a patient portal. The patient can leave a visit armed with information to guide their next steps.

Patient Engagement

Integration of Quippe into the patient portal provides for efficient capture of clinical data starting with the patient. Patient-facing forms include the same clinical concepts that flow into the chart summary and the note completed by the provider. When the patient reviews an intake form, reports symptoms, or updates their medical history, that data can be integrated into the chart. The epitome of capturing information once within the workflow!

Final Thoughts

The Quippe Data Model is different. It has to be in order to capture the clinical communication, provider thought process, patient status, billing, and reporting information that are all outputs of the patient visit.

Quippe, through the Data Model and Clinical Engine, makes clinical data dynamic and actionable. Once you have this type of patient- and problem-focused structured data, the possibilities are endless.

How will you enhance your clinical workflow and organization's operations by providing the right data, at the right time, to the right end user?



For questions or to see more of Quippe,
please contact support@medicomp.com

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