C.	**Technical Approach**

6.	**Management Information System** *(Section 15 Management Information System)*

Humana maintains highly effective and efficient Management Information Systems (MIS) to support the complex demands of our health coverage and care coordination activities. We recognize that information technology (IT) is the backbone of our core business functions, as it supports multiple lines of business. Our technology fuels innovation, enhancing our operational transaction processing, data collection, workflow, reporting, and analytics. We recognize that the fast pace of technological clinical advancements requires that we evolve by investing in our infrastructure to avoid falling behind industry standards. As such, since 2014, we have made

> IDG named **Humana IT one of its 2019 Digital Edge Award winners**, highlighting companies at the forefront of digital transformation, fostering business innovation in a culture of collaboration.

more than $1.5 billion in strategic IT investments. These investments differentiate us within the industry and enhance service delivery to our 18.5 million Enrollees in medical and pharmacy benefits plans and nearly five million Enrollees in dental and vision plans around the country.

Our MIS has the technical capabilities to meet the requirements for the Kentucky Medicaid Managed Care program. Having developed integrated system and business process platforms in numerous states and regions for Medicare Advantage (MA), Medicaid and Long-Term Services and Supports (LTSS), we have considerable experience to draw upon to meet Contract requirements. Our applications have proven that they can support the workflows necessary to manage Enrollee and provider interactions and leverage state-of-the-art technology to facilitate the improvement of Enrollee well-being, quality of care, and business processes.

a.	Provide a detailed description, diagrams and flowcharts of the Management Information System (MIS) the Vendor will use to support all aspects of Kentucky's Medicaid managed care program including the following subsystems: i. Enrollee Subsystem; ii. Third Party Liability (TPL); iii. Provider Subsystem; iv. Reference Subsystem; v. Claims Processing Subsystem (to include Encounter Data); vi. Financial Subsystem; vii. Utilization/Quality Improvement Subsystem; and viii. Surveillance Utilization Review Subsystem (SURS). As part of the response, include information about the following: i. Required interfaces, how the system will share and receive information with the Department, how the Vendor's system will use files provided by the Department, Subcontractors, providers, and other supporting entities. ii. Capability to store and use large amounts of data, to support data analyses, and to create standard and ad hoc reports. iii. Extent to which these systems are currently implemented and integrated with other systems, internal and external, and the Vendor's approach for assuring systems that are not fully implemented and integrated will be ready to begin operations on required timeframes. Diagrams and flowcharts should show each component of the MIS and the interfacing support systems used to ensure compliance with Contract requirements.

INTEGRATED, ENTERPRISE MANAGEMENT INFORMATION SYSTEM

Humana operates the eight subsystems required for the Kentucky program on an enterprise basis for state Medicaid programs, MA, and our Commercial lines of business. We apply these same processes, technologies, and systems to the Kentucky program. We present the overall system flow in **Attachment I.C.6-1 System Flow Diagram**.

The following is a description of the key capabilities of the **overall MIS** in:
- Ensuring data transmission across the required interfaces
- Storing and using large amounts of data
- Integrating key subsystems to support implementation in a timely manner

In the sections that follow, we have summarized how **each of the eight subsystems** fulfills these three key capabilities.

Required Interfaces

Humana exchanges data with Medicaid programs in several states, including the Commonwealth, for the eight subsystems described below. Table I.C.6-1 below shows many of the electronic interfaces we have established to stand up Medicaid programs in Virginia, Kentucky, Florida, Illinois, and Louisiana. Where we refer to "State," this includes State Subcontractors undertaking file transfers.

Table I.C.6-1: Examples of Humana's Electronic Interfaces

File Type	From –To	KY	IL	FL	LA
Enrollment 834 (Daily/Monthly)	State – Humana	Y	Y	Y	Y
Capitation Payment 820 (Monthly)	State – Humana	Y	Y	Y	Y
Provider File (Daily/Weekly)	State – Humana	Y	Y	Y	Y
Humana Provider Network (Weekly)	Humana – State	Y	Y	Y	Y
Humana Provider File (Weekly)	Humana – State	Y	Y	Y	Y
Encounter 837 (Weekly, Monthly)	Humana – State	Y	Y	Y	Y
Enc. Resp. 999, 277 (Weekly, Monthly)	State – Humana	Y	Y	Y	Y
NCPDP Rx Enc. (Weekly, Monthly)	Humana – State	Y	Y	Y	Y
NCPDP Rx Enc. Resp. (Weekly, Monthly)	State – Humana	Y	Y	Y	Y
Historical Claims/Auth (Monthly)	State – Humana	NA	Y	NA	NA
Eligibility Inquiry 270, 271 (Daily)	State – Humana	NA	NA	NA	Y

Our Electronic Transmissions department's sole purpose is to fulfill inbound and outbound data feeds. We take all appropriate security measures to protect the data and monitor the data feeds in the operational steady state. New data feeds are subject to all applicable System Development Life Cycle (SDLC) disciplines. In addition, Humana collaborated with the Kentucky Department of Medicaid Services (DMS) to successfully test and

implement all required interfaces. Humana promotes data interoperability using the HL7 Fast Health Interoperable Resources® (FHIR) Standards and application programming interfaces (API) to support real-time data exchange with our providers. We have bi-directional data sharing with providers via connections with Electronic health record (EHR) systems, State health information exchanges (HIE) and Material Subcontractors. These transactions include but are not limited to ADT, CCD (C32, C62, CCDA), and images.

Our proprietary population health management platform, Population Insights Compass (Compass), supports providers through Health Effectiveness Data and Information Set (HEDIS) and quality of care transmissions. Our provider portal, Availity, serves as a clearinghouse and information source for more than 80% of our providers, accommodating transactions from large and small practices.

Our connectivity with our subsidiaries and major Subcontractors meets standards for speed, availability, and security:

ASSOCIATE SPOTLIGHT:
Tom Payne, Kentucky Medicaid MIS Director

Tom brings 35 years of experience in IT to the role of Director of Humana's MIS operations in the Commonwealth. Tom has worked for Humana for the last 13 years – nine as the Director of IT Acquisitions and four as Medicaid Business Technology lead. He has expertise in claims, capitation systems, HEDIS, data warehousing, technical services, capacity management, and reporting systems. He is a strong communicator who is adept at creating synergy between the business and technology sides of the operation. He holds a BS in Business Administration from Indiana University Kelley School of Business and was licensed for 11 years by the Commonwealth as a Third-Party Administrator (TPA).

- DST Pharmacy Solutions, the claims adjudicator for Humana Pharmacy Solutions, Inc. (HPS), our in-house Pharmacy Benefit Manager (PBM), is a 24-hour, real-time point-of-sale (POS) processing engine running on a DB2 database. Humana connects with DST Pharmacy Solutions via a secure VPN tunnel used by all data transmissions, systems interfaces, and transactions between the two organizations.
- Avēsis, our dental and vision Subcontractor, uses one system, Cadence, to adjudicate both dental and eye care claims. Cadence is a tiered architecture system with a SQL Server back end and Internet Information Services front end. The system houses all Enrollee, provider, group, and claims data, along with associated billing and invoicing data. Avēsis has the appropriate technical software system and onsite technical resources to support MIS interface file processing and all Enrollee enrollment operational activities.

Humana applies consistent edits across all claims and encounter submissions for all types of providers and Subcontractors through our claims clearinghouses and our eHub. eHub is Humana's electronic "front door," applying robust business rule edits to inbound transactions and routing files to their appropriate platforms. Humana meets with key Subcontractors monthly to discuss performance across all functions, including claims and encounters.

> "
> **In 2019, prior to going live in Kentucky, Humana passed all aspects of the MIS Readiness Assessment. The reviewers concluded: "Humana is well organized and prepared to handle Kentucky business.**
> "

Capability to Store and Use Large Amounts of Data
Humana's goal for data collection and reporting is to show transparency, drive accuracy, and achieve results. We use a robust system, the Enterprise Data Warehouse (EDW), to collect and store data and generate reports that are accessible across the company. This includes a data mart that collects information from the claims system and Subcontractors, as well as from external entities such as the Centers for Medicare and Medicaid Services (CMS). Our Medicaid Reporting and Data Analytics team (MRDT) uses our EDW to consolidate many different data sources across our workstreams.

Because of the volume of information we are able to collect about our different lines of business (e.g., Medicaid, Medicare, Commercial, and TRICARE) and operational areas (e.g., quality, clinical, provider network, enrollment, authorization, claims, etc.), our processes for organizing and representing this information are standardized to maintain data integrity and transmit information accurately. This unified approach allows us to understand who our Enrollees are across data platforms and sources.

Our reporting system operates on standard operating procedures outlined in our Data Universe Generation Guide (DUGG). DUGG specifically outlines required attributes of State-Mandated Reports (Report Guide Driven). DUGG allows data users within Humana to understand the state requirements and ensures we compile reports tailored to those requirements. The DUGG procedure mandates standard steps users follow to generate and complete each report. Upon changes to state-mandated reports, data users are required to review the revised state template and meet with the business owner to document report modifications to ensure accuracy and completeness.

Humana's mature IT reporting infrastructure incorporates best practices into its data acquisition, reporting, and analytics environment. We leverage many industry-leading reporting tools (Qlikview, Oracle's BI Publisher, Oracle Business Intelligence Enterprise Edition (OBIEE), and SQL Server Reporting Services (SSRS)), to interrogate our EDW, which contains information from our core databases (enrollment, claims, premium, clinical, provider, pharmacy and financial), enabling a robust array of reports that includes drill-down dashboards, as well as scheduled and ad-hoc reports. We aggregate data at required intervals along dimensions such as quality, service level, and population to meet reporting requirements.

Our analysts mine this rich set of data resources uncovering insights that lead to innovative approaches to improve care delivery across all lines of business.

Extent of System Implementation and Integration
The integrated system and business process platform we use for the Kentucky Medicaid Managed Care program has evolved over more than two decades. We continuously invest and apply modern technologies as we anticipate and respond to the needs of the populations we serve. This platform is currently supporting Medicaid programs in Florida, Virginia, Illinois, and Kentucky. Moreover, our MIS supports us in serving more than four million MA Enrollees, including more than 675,000 Duals.

Of particular note, as of January 1, 2020, we have completed the transition of data and systems used in the Kentucky Medicaid Managed Care program from CareSource (CS) to Humana. The high level of data integration between Humana and CS enabled a smooth transition.

<u>**ENROLLEE SUBSYSTEM**</u>

Required Interfaces

Eligibility files (834 HIPAA 5010 transactions) from the Commonwealth enrollment broker are validated for HIPAA compliance using Edifecs and then loaded to the enrollment platform, Customer Interface (CI), via a mapping process. Humana's enrollment process is fully automated to add or modify membership information (including coverage effective and end dates) based on incoming enrollment data from the Commonwealth. See **Figure I.C.6-1 Enrollment Data Flow** (and **Attachment I.C.6-2 Enrollment Data Flow**).

Capability to Store and Use Large Amounts of Data

CI is the system that:

- Houses plan and Enrollee-level data for Humana's Medicaid membership, including: Medicaid ID, Humana ID, demographics, contact, and coverage information
- Serves as the enrollment system of record and as the source of data for downstream systems, including:
  o Medical claims adjudication
  o Pharmacy benefit manager (PBM)
  o Eligibility feeds to behavioral health (BH), dental, vision, and Electronic Visit Verification (EVV) delegated partners
  o Enterprise data warehouses (EDW)
  o Capitation payments to providers
  o Fulfillment Subcontractors for Enrollee ID cards, Enrollee Welcome Kits, and applications
  o Portals and data storage that enable data availability for Member Services Representatives (MSR) and Clinical Guidance specialists.

The unique Enrollee ID (displayed on the Enrollee ID card and on the Enrollee mailings and Handbooks) follow the Enrollee throughout Humana systems and processes, including feeds to our Subcontractors, providers and partners. This allows users to identify a distinct Medicaid Enrollee across populations and systems and to maintain and cross-reference all Enrollee-related information with the most current Medicaid provider number.

Extent of System Implementation and Integration

The Enrollment Subsystem is fully integrated with other key subsystems within our MIS as described previously and is fully operational for Enrollees from the Commonwealth as of January 1, 2020. These Enrollees were absorbed into CI along with existing Medicaid, Medicare, TRICARE and Commercial business without any capacity issues.

THIRD-PARTY LIABILITY (TPL)

Required Interfaces

Humana has a robust coordination of benefits (COB) process designed to preemptively avoid making payments for services that are the responsibility of another payer, thereby minimizing the amount of "pay and chase" activity that occurs. We proactively investigate other insurance new Enrollees may carry, educate Enrollees, and update our records of other insurance using email, outbound calls, mail, and coordination with other entities that supply insurance coverage validation services. We also investigate claims submitted to other insurance companies indicated on the claim form.

We gather information from several sources on other insurance that an Enrollee might hold that overlaps with their Medicaid eligibility dates, and place it in a TPL Resource File. In addition to CMS, our primary source is the Council for Affordable Quality Healthcare (CAQH). As a member of CAQH, Humana exchanges data with CAQH and obtains the latest TPL coverage information on Enrollees. Through its broad collaboration with stakeholders across the healthcare industry, CAQH maintains up-to-date information on third-party coverage, establishes standards for data exchange and system proficiency, and certifies health plans and others with respect to information exchange. Humana is one of only three organizations, and the only health plan, to have achieved CAQH/CORE (Committee on Operating Rules for Information Exchange) Phase IV certification, ensuring that our systems are best in class.

When a provider submits a claim for an Enrollee where another insurer or CMS is primary, we notify the provider of the Enrollee's other coverage and request that they submit a claim to that other entity. Where other insurers or Medicare coverage is primary and Humana has paid the provider, Humana will seek recovery from the provider and advise the provider to bill the other insurer. Once that claim is paid, the provider will send Humana the Explanation of Benefits (EOB) from the primary payer.

Capability to Store and Use Large Amounts of Data

The Claims Adjudication System (CAS), which processes claims from more than 200,000 providers, is updated to indicate the Enrollee's primary insurance and, if Humana coverage is secondary, we coordinate benefits with other carriers using National Association of Insurance Commissioners (NAIC) and Tax Equity and Fiscal Responsibility Act (TEFRA) rules. We have an automated process that will recoup any dollars erroneously paid as primary if we discover other insurance after the claim adjudication process. See **Attachment I.C.6-3 Third-Party Liability Process Flow**.

Our Claims Cost Management (CCM) unit also oversees the subrogation process where another third party (e.g., an auto insurer) is liable due to an Enrollee's involvement in an accident or other mishap. CCM's Subrogation unit identifies, investigates, and coordinates payment with other liable third parties. CCM uses the Enterprise Financial Recovery (EFR) system to view recoveries to determine if a refund check has been posted; to verify if Humana has received a refund check sent by the provider or Enrollee; to verify if an Accounts Payable check has been requested for the provider or Enrollee; and to verify if the refund check was a result of a Subrogation refund.

Extent of System Implementation and Integration

The TPL system described above is fully operational for the Kentucky Medicaid Managed Care program. Humana supplements the list of insurance companies from which to search for Enrollees' other insurance with information provided by DMS. Humana adjusts its systems to receive additional third-party files from DMS to update our Third Party Resource File, as appropriate, on other insurance held by Enrollees. We send a monthly report to DMS detailing its COB/TPL activities and its success at recovering funds, including from subrogation cases.

PROVIDER SUBSYSTEM

Required Interfaces

Humana offers integrated provider capabilities enabling provider onboarding, discovery, and network directory services. Accelerated Provider Exchange (APEX) is the provider data intake system with robust business workflows and automation for provider onboarding and data updates. Humana currently exchanges Provider files with DMS via APEX on a weekly basis.

Capability to Store and Use Large Amounts of Data

The systems leveraging this data include the:

1. Provider Information Management System (PIMS), which is the primary provider directory system that consists of demographic data, providers' servicing locations, credentialing information, and providers' affiliations
2. CAS, which stores provider billing and payment information along with specific adjudication information
3. Provider Master Data Management (PMDM) platform, which connects all provider records, linking disparate provider data sources and enabling enterprise-wide provider identity.

Humana associates can retrieve any provider information through an integrated enterprise provider service used in real time to enable referrals, authorizations, interactive voice response (IVR), Primary Care Provider (PCP) identification, and general provider lookup. Aggregated provider data is sent downstream into the EDW as well as operational data store (ODS). Synchronized on a nightly basis, this data is available for various enterprise functional needs, such as assessments of network adequacy.

Access to provider data is based on role-level access parameters that are controlled by Enterprise Information Protection Access Management (EIPAM). See **Attachments I.C.6-4 Provider Subsystem Data Flow**.

Extent of System Implementation and Integration

The Provider Subsystem described above is fully operational for the Kentucky Medicaid Managed Care program. Humana is updating the PMDM platform to improve performance with expected completion in 2021. This modernization will improve the performance of the Provider Subsystem. We have designed a phased implementation to ensure that there will be no delays or deterioration in the performance of the system while it is being updated.

REFERENCE SUBSYSTEM

Required Interfaces

The Reference Subsystem is a collection of applications, services, and data stores that interact to ensure accurate and timely payment of providers based on the most up-to-date clinical coding, procedural coding, pricing documentation, and provider contracts available. The Contract Information System (CIS), a core component of the Reference Subsystem, is responsible for the build, update, and display of all Humana provider contracts. Through CIS interactions with the CAS, Humana prices or re-prices more than 15 million claims per month. These claims encompass major payer categories (Commercial, Medicare, and Medicaid) and service types (medical, dental, BH).

Capability to Store and Use Large Amounts of Data

CIS retains three years of all pricing terms and reference data cited in Appendix G of the Draft Medicaid Contract, including:

- Seven-digit International Classification of Disease (ICD) version 10
- Five-character Healthcare Common Procedure Coding System (HCPCS) codes for medical-surgical and other professional services
- Two-character field for HCPCS pricing modifiers
- American Dental Association (ADA) dental codes

- Eleven-digit National Drug Code (NDC), including package size, which can accommodate updates from a drug pricing service and the Centers for Medicare and Medicaid Services (CMS) Drug Rebate file updates
- DMS-specific codes for other medical services
- Ability to accommodate multiple pricing arrangements fee for service (FFS), capitation, diagnostically related groups, per diem, and other), and associated pricing files
- Current Procedure Terminology (CPT) and other industry-standard procedure and revenue codes

See **Attachment I.C.6-5 Reference Subsystem Data Flow**, for a depiction of the data capabilities described above.

Extent of System Implementation and Integration

The Reference Subsystem described above is fully operational for the Kentucky Medicaid Managed Care program. By updating contract documentation, CIS supports Financial Recovery Systems in its efforts to recoup funds from contractors and Medicare. Through this system integration, CIS supplies information to update 15 Medicare and Medicaid pricing systems on a quarterly basis. Information supplied by CIS supports modeling contractual arrangements with hospitals and other provider systems. CIS models more than 4,000 provider contracts each month.

CLAIMS PROCESSING SUBSYSTEM (TO INCLUDE ENCOUNTER DATA)

Required Interfaces

Humana's front-end claims routing system, eHub, receives claims from more than 300,000 providers (including medical, vision, and dental) through more than 100 clearinghouses. eHub performs eligibility verification and routes electronic and paper claims (formatted for HIPAA 837) to Humana's CAS multiple times per day. Humana's internal and integrated encounter data system, which generates more than 500,000 encounters per day, six days a week, receives claims and enrollment data from CAS, CI, and eHub systems to create compliant HIPAA 837 encounters. After CAS has checked the Covered Services and processed claims accordingly, we track Covered Services received by Enrollees through the system, and accurately and fully maintain those Covered Services as HIPAA-compliant encounter transactions.

Humana uses an in-house PBM, HPS, through a wholly-owned subsidiary. HPS contracts with DST Pharmacy Solutions, a claims adjudication platform, which adjudicates all pharmacy claims at the point of sale, rejecting claims that do not meet POS processing requirements. DST Pharmacy Solutions sends Humana a feed of paid claims daily. See **Figure I.C.6-2 Claims Adjudication Process Flow**.

Edifecs, our encounter management software, generates our encounter data. All outgoing files are batched according to HIPAA guidelines and validated against Strategic National Implementation Process (SNIP) - level editing. The system can batch up to 85,000 encounters per file. The outbound encounters, which contain Humana adjudication information in applicable COB segments, are formatted to meet HIPAA 837 guidelines and any CMS or state-specific requirements. We employ industry-standard medical billing taxonomies (procedure and diagnosis codes) to describe services delivered and Encounter transactions produced. The system is designed to accept inbound HIPAA-compliant formats (TA1, 997, 999 (A, R, E), 277CA, 277U, 835) and most proprietary files. Once acknowledgments are loaded in the system, all rejected encounters are sent to queues for manual correction and resubmission in the next outbound batch. We will enhance our encounter data system to transmit encounter data transactions on electronic media, in the HIPAA format, to the contractor the Commonwealth designates. See **Attachment I.C.6-7 Non-Pharmacy Encounter Submission Process**.

Paid pharmacy claims flow to our EDW on a daily basis. The Humana Pharmacy Encounter system processes the data and creates the National Council for Prescription Drug Programs (NCPDP) Encounter Data file, ensuring all required fields are completed and in the required format. The NCPDP-formatted Encounter Data file is sent to the Commonwealth. See **Attachment I.C.6-8 Pharmacy Encounter Submission Process.**

In addition, HPS uses spread pricing, which ensures transparency at the Managed Care Organization (MCO), provider, and agency levels and complies with Kentucky Senate Bill 5 (2018) and agency intent.

Extent of System Implementation and Integration
The claims and encounter processes described previously are fully operational for the Kentucky Medicaid Managed Care program. Humana is in the process of upgrading its encounter processing software (Edifecs) with a proprietary, custom application (HERO). As described in subsection I.C.6.f, we are undertaking this modernization to improve encounter processing speed, accuracy, and our ability to resolve issues in a more timely manner.

FINANCIAL

Required Interfaces

Humana uses the Oracle EBS Financial platform to support all financial operations and processing. This integrated Enterprise Resource Planning (ERP) platform is used as the single source of GL external and Department of Insurance (DOI) reporting. The sub-ledgers are used to classify operational transactions (such as claims, premiums, and commission payments) that feed the GL to ensure our monthly, quarterly, and year-end external reporting represents a full financial picture for the company's external and Security and Exchange Commission (SEC) reporting. We use the Total Reconciliation Solution (TREC) to perform all reconciliations (sub ledgers to GL, bank account, and system-to-system) monthly, as well as chain of trust compliance for any interfaces coming into the GL.

Capability to Store and Use Large Amounts of Data

The Oracle system was recently upgraded to version 12.2. We ensure that all financial transactions are auditable according to generally accepted accounting principle (GAAP) guidelines. We employ a separate disbursement tool, PayPilot, for processing provider and some Enrollee payments for the majority of our claims platforms. We also reconcile the data processed via this tool through TREC. We report externally through Oracle products, including Oracle Business Intelligence Application (OBIA) and Hyperion. We pay financial transactions to providers in compliance with federal and state laws, rules, and regulations.

Extent of System Implementation and Integration

The integrated, enterprise-wide Financial Subsystem described above is fully operational for the Kentucky Medicaid Managed Care program.

UTILIZATION/QUALITY IMPROVEMENT

Required Interfaces

Humana uses **CareHub, our internal and proprietary integrated set of tools, to monitor and track health outcomes and utilization for Enrollee populations**. To supply clinicians with a holistic view of the Enrollee, CareHub integrates Enrollee data from a variety of sources (claims, Health Risk Assessment (HRA), biometrics, personal health profile, lab tests, and results) through the Clinical Guidance eXchange (CGX), which, in turn, supports the Clinical Insights Engine (such as Transcend and Atlas) and clinical analytics. As a fully integrated platform, CareHub supplies enhanced capabilities to identify candidates for programs, document gaps in care, automate care planning, monitor plan compliance, and identify undesirable outcomes for further intervention. All clinicians have access to a 360-degree view of each Enrollee's clinical profile.

CareHub's advanced data analytics and predictive modeling functionality, which can run more than 100 clinical models, allows Humana to identify high-risk Enrollees for engagement in tailored, localized care management programs. Our analytical model is based on a common set of claims and enrollment platforms, ensuring a comprehensive and consistent approach to analysis of Enrollee data. See **Attachment I.C.6-9 Utilization Management Process Flow**.

Capability to Store and Use Large Amounts of Data

Our care management subsystem, shown in **Attachment I.C.6-10 Integrated Systems Overview** and **Attachment I.C.6-11 Utilization Management/Quality Improvement Data Flow**, facilitates communication to and among:

- Providers: by automatically e-faxing authorizations to the servicing providers and care plans to the PCP, and enabling provider access to care management information through our provider portal, Availity
- Helpline: by supplying eligibility files daily to our after-hours helpline, which in turn sends daily call log information to the care management system
- Enrollees: by enabling access via the Enrollee Portal to their care plan results
- Care Managers (CM): by supplying CMs and the Utilization Management (UM) team a 360-degree clinical view of the Enrollee (authorizations, referrals, care plans, and HRAs) via the business partner portal

The rich store of data contained within CareHub enables us to produce actionable reports that guide UM and quality improvement (QI) efforts. Some examples include:

- **Utilization Management (UM)/Disease Management (DM) Report**: Humana uses a customized solution to ensure full oversight of our UM/DM Cases and Enrollees. Through this solution, leaders across our organization can monitor and review open cases, ensuring our providers are meeting with Enrollees to help them achieve their best health. Refer to **Attachment I.C.27-4 UM/DM Report Template**.
- **Early Indicator Report (EIR**): This custom reporting suite allows Humana to track and trend hospital admissions, re-admissions, and emergency department (ED) visits by multiple dimensions such as: geography, demographics, disease state, and hospital/provider system. This robust reporting suite allows all areas within the organization to oversee trends while enabling deep-dive reviews to address opportunities with specific providers or adjust clinical delivery models to ensure optimal quality. Refer to **Attachment I.C.27-5 Early Indicator Report Template**.
- **High-Utilizer Report (HUR**): Monitors and tracks ED utilization at the Enrollee level, identifying those Enrollees who have disproportionately high ED utilization (e.g., "ED frequent fliers"). Refer to **Attachment I.C.27-6 High Utilizer Report Template**.

As shown in Table I.C.6-2, Humana achieves systematic measurement and assessment of quality of care using multiple data systems. We evaluate these systems annually to verify that we have adequate resources to meet the needs of the program.

Table I.C.6-2: Tools Supporting Management and Reporting on Quality

Report	Description
Enterprise Data Warehouse (EDW)	EDW houses Enrollee- and claim-level data, and is one of the largest data sources used for quality and clinical analytics activities.
Rules Engines (Cotiviti/Anvita)	Cotiviti, serves as the official source of truth for Humana's HEDIS results and HEDIS rate progress throughout the year. With each **monthly refresh** of HEDIS rates, HEDIS Enrollee-level detail tables are generated and sent to EDW, where they are used for operational progress reporting and clinical/quality analytics. Anvita is Humana's internally managed clinical rules engine that allows us to generate care gap reporting on a more frequent basis in order to source Enrollee alerts, predictive models, and provider reporting on open care gaps and needed preventive services. It also supports our rapid-cycle QI activities.
Predictive Models	We use predictive models to anticipate individual Enrollee behaviors and proactively intervene, usually via outreach and engagement.
Business Intelligence (BI) Tools	Humana uses multiple BI tools to observe and analyze many subsets of the quality landscape. From simple Excel dashboards to complex Qlikview and Tableau reporting portals, we monitor and analyze performance via root cause analysis, and can slice and manipulate data for areas such as BH, population health, pharmacy, UM, provider-level reporting, cohort- and demographic-level reporting, clinical and operational process monitoring, etc.
HEDIS Dashboard	Our HEDIS dashboard serves as our internal Medicaid reporting tool. Updated monthly, it aggregates Medicaid Enrollee data, provides data at an Enrollee-level detail, and helps define populations for pilot campaigns. This dashboard includes all HEDIS measures and sub-measures on which we report and trends performance, including a prior three-month trend and our performance relative to the 50th and 75th percentile bands, to monitor and assess progress on any measure. The dashboard can be filtered by market, region, demographics, etc. to identify specific performance disparities.

Table I.C.6-2: Tools Supporting Management and Reporting on Quality

Report	Description
State Priority Reporting	Our strategic State Priority Reporting is designed to track quality and other outcome measures required within our State Medicaid Contract. These reporting capabilities allow continuous monitoring of measures required by the Department and facilitate both required reporting as well as identification of our QI opportunities.
UM Operational Dashboards	We produce operational dashboards and reports that aggregate data in an actionable format to help identify Enrollees who are at high risk for high-cost utilizations. Refer to section I.C.10 Utilization Management of the RFP for more information.
3M Potentially Preventable Events (PPE) Suite of Tools	Our Medicaid Trend Analytics team uses the 3M PPE suite of reporting products to complement the EIR used to assess admit, readmit, and ED visit trends. This suite provides additional insights into utilization trends, identifies PPE, and creates reporting consistency across all of our Medicaid programs.

See **Attachment I.C.6-12 Quality Improvement/HEDIS Data Flow** for a depiction of these data flow through our systems, resulting in reports for DMS.

Extent of System Implementation and Integration
The UM and Quality Subsystem described previously is fully operational for the Kentucky Medicaid Managed Care program. **Humana has direct connections built with all eight of the leading EHR software systems, including EPIC, Allscripts, eClinicalWorks, and athenahealth, Inc.,** to facilitate the timely transfer of clinical data that supports identifying and closing gaps in care, as well as our efforts to monitor, track, and improve HEDIS measures. These connections provide near real-time clinical data via continuity of care documents (CCD) from our network providers, as well as admission, discharge, and transfer (ADT) notifications, if the vendor is capable.

As described in section I.C.8 KHIE and Electronic Health Records, Humana is building upon these connections by providing financial assistance to providers without EHR systems or inadequate EHRs to purchase or upgrade their systems. In addition, we are providing financial assistance to those providers lacking connectivity with the Kentucky Health Information Exchange (KHIE). These investments will increase the likelihood that providers will use systems such as our proprietary Compass tool to track quality of care for Enrollees and participate in value-based purchasing arrangements.

SURVEILLANCE UTILIZATION REVIEW SUBSYSTEM (SURS)

Required Interfaces
Humana's Fraud, Research, Analytics and Concepts (FRAC) team conducts several activities to proactively detect insurance fraud, waste, and abuse (FWA). The process begins with reviews of information provided through several sources, including communications from government agencies, industry associations, and other private payers. The FRAC team conducts risk assessment and data analysis to determine which potentially fraudulent activities warrant further investigation.

The team conducts data mining based on identified risk. This data mining entails analyses of large amounts of data from a variety of sources. Typically, this analysis involves comparisons of information on claims with information on other databases including provider information, diagnostic coding, drugs purchased, and Enrollee information. This analysis aids in the identification of instances of FWA by medical providers, prescribers, Enrollees, associates and pharmacies.

Capability to Store and Use Large Amounts of Data
We use state-of-the-art software applications to construct analytical, statistical, and predictive models to detect FWA. Models are developed for specific specialties and types of services. Data is selected based on investigations, research into specific fraud schemes, and scenarios affecting specific models. The analysis is

designed to identify data markers that indicate likely instances of FWA. Types of analysis include: outlier analysis, trend analysis, anomaly detection, rules-based anomaly detection, and other statistical analyses.

Humana's FRAC team uses Qlikview to build dynamic models capable of accepting large amounts of data from a variety of sources. Qlikview's data visualization capabilities help identify suspicious billing patterns and other indicators of potential FWA. We refer suspected cases of FWA through the case tracking system for triage review.

Humana enters all incoming cases of suspected FWA into the Fraud Investigative Tracking (FIT) system, the Special Investigative Unit's (SIU) workflow documentation system. As the case progresses, the investigative steps are recorded in the FIT and electronic copies of all documents pertaining to the case are attached to the file. We also store SIU cases in the EDW. All case information is documented in FIT and retained for a minimum of 10 years.

These systems and processes ensure that Humana complies with Section 37 and Appendix N of the Commonwealth's Medicaid Managed Care Contract. In particular, the analysis of claims data using specified algorithms will facilitate quarterly reporting of to the Commonwealth on all algorithms run, issues identified, actions taken, and overpayments collected. See **Attachment I.C.6-13 SURS Data and Process Flow** for a depiction of the SURS end-to-end process.

Extent of System Implementation and Integration
The SURS described above is fully operational for the Kentucky Medicaid Managed Care program.

b.	Provide a description for and list of potential risks and mitigation strategies for implementing new information systems and changes to existing systems to support the Kentucky Medicaid managed care program.

Humana's MIS is fully operational for the Kentucky Medicaid Managed Care program. We actively monitor the performance of our systems and keep abreast of developments in the marketplace that will improve the efficiency and effectiveness of our operational systems. Given the fast pace of technological change, it is inevitable that new IT developments will present opportunities for Humana to improve performance. We undertake information system changes using robust project management and system development processes that ensure our upgrades do not result in downtime for Enrollees, providers, or payers. As described below, we have sophisticated structures for risk governance and risk mitigation, which we deploy on an enterprise basis.

INFORMATION TECHNOLOGY RISK GOVERNANCE

Within the overall Enterprise Risk Management (ERM) structure, the Information Technology Risk Governance (ITRG) team functions as the IT Operational Risk Management team, focused on the risk governance of IT. Risks included as part of the scope of the ITRG include, but are not limited to:

- Application Engineering/Development
- Information/Logical Security
- Network Configuration
- Hardware Configuration
- Scheduling Management
- Capacity Management
- Disaster Recovery
- Data Governance
- Change Management

ITRG partners with the IT teams responsible for their technology arena. The ITRG team also partners with the IT Team within the Internal Audit Consulting Group, the Chief Risk Office, and Enterprise Information Protection

(EIP) to discuss risks, audits, and results of assessments. The resulting discussions and collaborations help to refine the risk assessment and audit scoping process.

The ITRG performs a variety of reviews from a risk perspective, including but not limited to:
- Technology Functional (i.e., Technology Infrastructure) area risk assessment;
- Technical Workflow (i.e., Technology Retirement) risk assessment;
- Technology Maturity risk assessment; and Technology Control Self-Assessment (CSA) assessment.

Figure I.C.6-3: Enterprise Risk Management Framework

The results of these efforts are documented and maintained in Humana's Governance Risk and Compliance (GRC) enterprise tool. Humana leverages an automated GRC tool, developed by Archer Technologies, identified internally as Enterprise Solution Point (ESP). ESP contains a variety of modules or functions that facilitate the ERM function. Although there are dozens of modules and functions within ESP, the primary modules leveraged for risk management include (but not limited to): risk register, program/engagement, issues and opportunities, and process/procedure.

Humana maintains a central document repository for Directive Controls (i.e., Policies and Standards) called Policy Source. Policies provide directive guidance on risk management across all organizational domains (e.g., Financial, Operational, Compliance, and Strategic) in all lines of business, that are then leveraged by the ERM functions as an authoritative source against which to perform risk assessments and reviews.

POTENTIAL RISKS AND MITIGATION STRATEGIES
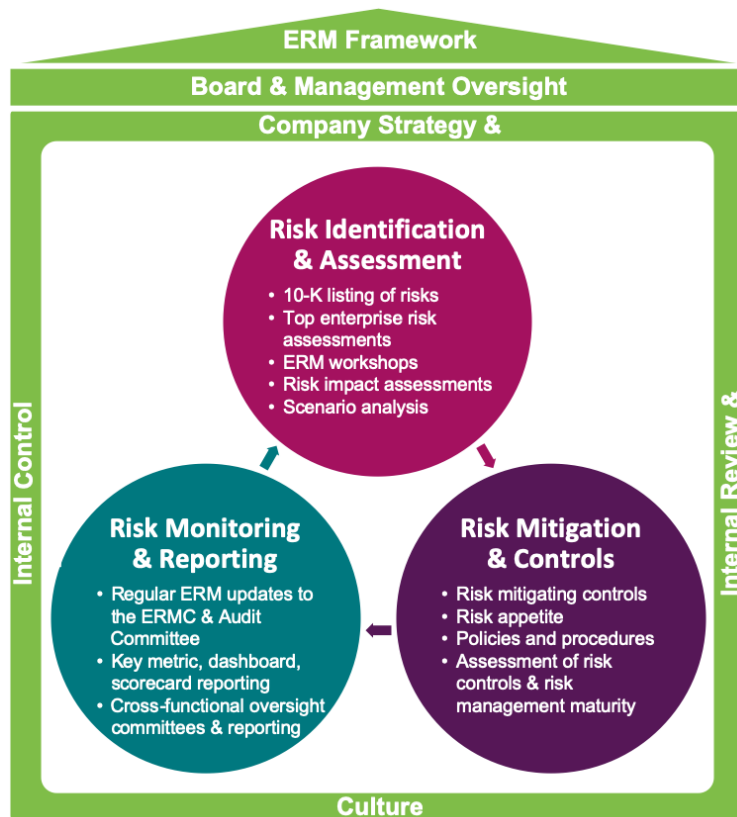**FOR IMPLEMENTING IT TO SUPPORT THE KENTUCKY MEDICAID PROGRAM**

Humana leverages the Risk Register application within the enterprise GRC tool to document, evaluate, track, link and monitor risks. Risks found through the identification process are added or linked to an existing risk register. Within the tool, each risk is assigned a unique risk identification number. The information obtained about the risk includes a description, owner, and manager. Risk mitigation approaches fall into four categories:
- Avoidance (avoidance of activity that presents risk)
- Reduction (controls that can reduce the likelihood or impact of a risk)
- Transference (shifting risk to an outside entity)
- Acceptance (risks accepted by Chief Risk Officer)

By implementing our customized Systems Development Life Cycle (SDLC) approach to IT implementations, we can anticipate risks and adopt mitigation strategies during the development stage. New data feeds are subject to all of the applicable SDLC disciplines, including comprehensive unit, system, and integrated testing using the test environments established specifically for that purpose. Humana uses both Waterfall and Agile development strategies, each of which entails deliberate planning, testing, and evaluation stages.

The Enterprise Change Management team is responsible for evaluating risk and preparedness for all technology changes across Humana and our Subcontractors. This team facilitates Change Approval Board meetings multiple times per week to ensure that high-and medium-risk infrastructure and security changes, as well as changes

affecting critical systems, are operationally ready for deployment. Humana incorporates audit trails throughout our applications and maintains a history of change and audit trails for current and retroactive data.

We managed the smooth migration of information from CareSource MIS to Humana MIS, which occurred on January 1, 2020. Prior to the integration, the ITRG team reviewed the risks associated with this process and determined that they were mitigated by several factors:

- CareSource was contractually obligated and financially motivated to assist us with a successful migration
- Humana IT had planned test runs of the migration steps, in which we had the opportunity to identify issues relating to the migration files
- Humana IT was already receiving CareSource membership and claims information. Although that information was not currently in our core Claims and Enrollment systems, having the data in-house was an excellent way to validate the information we received from CareSource
- Humana IT was also receiving 834 enrollment files directly from the Commonwealth, giving us another way to validate that the membership we received from CareSource is accurate

The integration of CareSource data within Humana's MIS was achieved successfully and the few issues that did arise were quickly escalated and mitigated. This successful transition of more than 145,000 Enrollees was due to the strong capabilities of Humana's MIS, built over decades across numerous lines of business, and the strength of our risk management processes to identify and mitigate risks. The steps leading up to the January 1, 2020 switchover were clearly developed using our SDLC and change management processes. The high level of information sharing and cooperation that existed between the two organizations further aided the transition.

During the course of this Contract, we are undertaking upgrades of subsystems in response to opportunities to take advantage of technological developments and best practices. Examples include:

Encounter Processing: We are undertaking a phased replacement of the Edifecs encounter processing system with HERO, a Humana-developed system. The new system will improve our encounter processing speed, enable a greater volume of encounters to be processed concurrently, detect errors earlier in the process, and provide more data on system performance to enable faster problem identification and resolution. This replacement has begun and will occur in phases through 2021. We have designed this deployment to ensure that encounter reporting to DMS will continue seamlessly.

Provider Subsystem: We are undertaking a modernization of the PMDM system that will continue into 2021. This initiative will improve both the provider and Enrollee experience when accessing Humana provider data by more tightly integrating Humana's provider functionality. For example, this modernization will accelerate the timing of an Enrollee's PCP assignment when assignment is required. The goals of the PMDM modernization project are to: make the provider ecosystem more accessible and usable for providers and Enrollees; provide more of a 360-view of providers incorporating more data elements of interest; make provider data available more quickly and at a lower cost; and allow for user migration from the old to the new system over time. There are several use cases planned for the new system, including PCP enrollment and PCP lookup. The project will involve updating technology, including use of a graph database engine, Kafka StreamSets, and MongoDB.

For both projects, the primary risk mitigation strategies are:

- Use of proven methodologies for SDLC, change management, project management, and risk management
- Risk governance and oversight based on our ERM approach
- Activation of a Command Center operation after every software production turn to immediately identify and remediate any issue which could impact Enrollees or providers
- Phased development of each project, including parallel use of existing systems until we complete each phase and evaluate it as successful
- Continuous communication with internal and external stakeholders, including DMS

These strategies address a number of risk-based concerns about large system projects implementations, including:

- Are the existing interface points cared for in the new system to ensure we do not cause a loss of service?
- Are the performance service levels the same or better in the new system?
- Was the appropriate set of data used for performance testing?
- Is the implementation/migration plan a gradual rollout over time or a "big bang" approach?
- Is there a solid operational readiness plan in place prior to the launch?
- Is there a solid communication plan in place prior to the launch?
- Are all test cases closed successfully?
- Is there a documented back-out plan?
- Is there a documented Post-Production Validation plan?

Open and responsive communication is a key aspect of risk management. Our Kentucky Medicaid MIS Director, Tom Payne, has more than 35 years of experience in information system management, including 13 years with Humana. He will be the point person in communicating with DMS, relaying progress on all system development projects, and responding to any questions.

c.	Describe the Vendor's current and planned use and support of new and existing technology in health information exchange (HIE), electronic health records (EHR), and personal health records (PHR).

Humana is an active participant in national discussions about interoperability and data exchange. We support the development of and adherence to agreed standards that promote optimal data exchange. We support abiding by the latest Trusted Exchange Framework and Common Agreement (TEFCA), and convening under the oversight of a board of representing the broad interests of the healthcare community. We support eHealth Exchange, which connects 59 regional and/or state HIEs, three quarters of U.S. hospitals, and 120 million patients. We are also founding members of the DaVinci Project, which consists of industry leaders who are working together to accelerate the adoption of HL7 FHIR® as the standard to support and integrate value-based care data exchange. The DaVinci Project works across payers, providers, and vendors to support improvements in healthcare quality and efficiency.

Humana has demonstrated its capacity to exchange data with Medicaid programs in several states, and can confirm the capability to interface with the Commonwealth and its intermediaries concerning key functions, as described in the Draft Medicaid Contract. These key functions include enrollment and eligibility, encounters, provider information, EVV, and reporting. As referenced earlier, we leverage HL7 FHIR® Standards and APIs to support interoperability.

From October 2018 to September 2019, Humana processed more than 40.6 million transactions with EHR vendors and HIEs on behalf of providers located in Kentucky, the 49 other states, and the District of Columbia. This high level of connectivity increased the number of notifications to providers on Enrollee admissions and service utilization, led to gap in care closures, and improved Humana's ability to report upon services that Enrollees received. Most importantly, it enhanced the quality and timeliness of care Enrollees received. Humana aims to achieve similar results for Medicaid Enrollees in Kentucky through our relationships with EHR vendors.

Humana will build upon these EHR connections during the MCO implementation period. As described in Section I.C.8 KHIE and EHR Adoption, we are investing $500,000 in providers who adopt EHRs and connect with KHIE. We anticipate the largest impact will occur for those serving high volumes of Medicaid Enrollees in underserved rural and urban areas. Additionally, we are working with EHR vendors concerning connectivity with hospitals for exchange of ADT data. We have had previous success in establishing ADT connectivity in nine states (Oregon, Washington, New Mexico, Virginia, West Virginia, Florida, New Hampshire, New Jersey) and the city of San Antonio, Texas. Four additional states including Maryland and Alabama are in the development phase. Humana will apply lessons learned in those states to Kentucky. This will assist our contracted hospitals in meeting

contractual requirements to supply ADT data to KHIE. We will also work with EHRs to expand their relationships with non-hospital providers in Kentucky. In particular, we will support the current practice of contracted providers submitted immunization records the Kentucky Immunization Registry via KHIE.

For the last several years, Humana has collaborated with Blue Button, enabling Enrollees from all lines of business, including Medicaid, with the ability to view their personal health records (PHR) from all carriers online. We will extend this practice to Medicaid Enrollees in Kentucky.

We also maintain an active Enrollee Portal that provides Enrollees with ready access to their data online. Enrollees register and login to the portal through the MyHumana section of our website, a secure and protected portal. Once on the page, Enrollees see a dashboard that displays personalized notifications of key actions ("Get your annual check-up") and other timely information (e.g., details on current medical claims). The Coverage tab shows the Enrollee's specific benefits, including details on health programs, finding providers, and pharmacy resources. The Claims tab displays all the services the Enrollee has received in the prior 18 months, including doctor visits, vaccinations, prescription drugs, and referrals.

The MyHealth tab includes personalized data such as the Enrollee's most recent lab results, age- and gender-appropriate preventive health tests and screenings, and alerts for medications needing renewal. MyHealth features clinical digital tools and recommended health programs based on the Enrollee's health conditions. For example, Enrollees with diabetes have access to a "Living with Diabetes" toolkit with tips on tracking HbA1c levels, foot care, and exercise habits. Gap-in-care alerts appear if Enrollees have missed condition-specific care (e.g., blood pressure check for hypertension). Also in MyHealth, Enrollees may complete an Initial Health Needs Screening that asks questions about their health, diagnosed conditions, and the services they are receiving.

The table below shows what is available to Enrollees on the Member Portal.

Table I.C.6-3: Information Available on Humana's Member Portal

Category	Availability	Features
Administrative Information (core)	✓	Verify Enrollee eligibility, view Enrollee demographics, request to change PCP, print and request Enrollee ID cards
Health Information (core)	✓	Enrollee history, referral history (including Management of Chronic Conditions), prior authorization (PA) requests/approvals/denials, Notices of Action (NOA), doctor visits, vaccinations, prescription drugs, lab results, service plans
Additional Tools	✓	MyHealth, Blue Button, drug dictionary and interactions, drug pricing tool and prescription calculator. Enables submission of grievances and appeals. Complete Initial Health Needs Screening

Available for iOS and Android, the MyHumana smartphone application gives Enrollees easy and intuitive ways to understand their coverage, check claims status, view their Enrollee ID cards, and search in-network providers. The provider search tool within the application includes the same search functions and filters as those currently available online through Humana's Physician Finder Plus (PFP), giving access to in-network providers at Enrollees' fingertips. They can also use the MyHumana to request a change of provider. Additionally, through MyHumana, Enrollees can view information on their provider visits, lab results, prescription history, care plans, and vaccinations.

d.	Describe the Vendor's approach to assessing integrity, accuracy, and completeness of data submitted by providers and Subcontractors.

Humana requires that all submitted claims and all encounter files from the sub-capitated providers and Subcontractors (dental, vision, and BH) pass the same electronic edits, ensuring encounters are accurately and

fully populated for submission to the Commonwealth. Our high accuracy rate for encounters is, in part, a result of this front-end claims editing performed by our clearinghouses and eHub, which serves as the gateway to the submission of data into CAS for claims adjudication. Front-end edits will include both quality checks for the state-mandated modifiers and codes, in addition to current Humana-specific edits. Claims and encounters that do not pass these edits result in acknowledgments returned to the provider and Subcontractors via clearinghouses. Humana customized the Edifecs software to allow for a combination of the HIPAA 837 files received from providers and Subcontractors with the outbound HIPAA 835 files sent to providers and Subcontractors.

After creating an encounter, Edifecs validates HIPAA X12-compliance, ensuring any encounters with errors are corrected prior to submission to the Commonwealth. Encounters are then batched based on state specifications and uploaded to our file transfer site. Those identified on acknowledgments as having errors are added to the exception worklist in Edifecs for error resolution and tracking.

The timeliness of our encounter submission has consistently exceeded standards, such as ensuring that 95% of encounters are submitted within seven days. Our encounter reporting system generates an alert when we are at risk of missing an upcoming timeliness standard. The system produces a daily report that identifies encounters in jeopardy of falling out of compliance, allowing for adequate distribution of work based on timeliness. For those encounters closest to failing Commonwealth requirements are prioritized for same-day resolution. Any record that fails during the process of uploading claims to Edifecs results in an IT alert. Humana notifies necessary stakeholders, then takes immediate action to address any failed process. Humana reporting, based on the encounter and service line counts, indicates the volume of encounters received into the Edifecs system that have not yet been submitted. Humana monitors these reports to ensure all encounters are processed.

To ensure that we include complete data in encounter submissions, we implemented HIPAA Level VII edits for data integrity and validity to evaluate the data received in the encounter files from Humana providers and Subcontractors through our provider portal, Availity. We maintain multiple reports to monitor the status of all encounters, ensuring complete encounter submissions.

We use an automated process through which we capture the encounter data elements from the submitted claims information and the end-to-end process that will generate and submit the file to the Commonwealth. This ensures that all data submitted are accurate, timely, complete, and use Commonwealth-mandated modifiers and codes.

Our pharmacy encounter monitoring process includes: a) daily tracking and monitoring of submissions to the Commonwealth, response reports from the Commonwealth and resubmissions; b) Timeliness Audit report; c) Encounter Submission and Error Tracking report; and d) Completeness report, which ensures we are submitting an encounter for every paid pharmacy claim. In Florida, Humana has consistently surpassed pharmacy encounter completeness, accuracy, and timeliness requirements.

Our connectivity with our subsidiaries and major Subcontractors meets standards for speed, accuracy, and security. Our Subcontractors are highly integrated within plan operations

- Subcontractor encounter performance data is integrated within operational, quality, and compliance performance reporting
- Our Subcontractors attend and participate within our operational governance framework, quality committees, and compliance forums

Humana has implemented a rigorous oversight program for Subcontractor performance led by Wesley Whitmire, National Medicaid Material Subcontractor Oversight Director, who is based in Louisville. The Relationship Manager (RM) monitors and oversees Subcontractors with delegated functions. A RM is assigned to each subcontractor and oversees the performance and compliance of the Subcontractor via regular Joint Operational Committee (JOC) meetings with the Subcontractor, and receipt of regular reporting as required in the Subcontractor's agreement. We forward summaries of Subcontractors' performance to the Kentucky Quality

Improvement Committee (QIC) each month and on a quarterly basis. Matters meriting broader engagement are presented to the Executive Steering Committee, which is composed of our Kentucky Medicaid senior leadership team.

Our Service Level Agreements with those Subcontractors transmitting encounters include the following terms:

- Encounter Data File Timeliness: Failure to deliver an encounter file meeting agreed-upon specifications within the times specified will result in a charge of $1,000 per late submission per calendar day
- Encounter Data Accuracy: An error rate > five percent in encounter data received from a Subcontractor based on a Humana encounter response file will cost $1,000 per file that exceeds the standard of more than five percent errors
- Encounter Data Completeness: We require a completeness rate of at least 90% in encounter data received from a Subcontractor based on a Humana encounter response file. The fee is $1,000 per file that does not meet the standard for completeness rate
- Encounter Data File Transfers: Files must be transferred no later than Friday 12 a.m. midnight Eastern Standard Time. The fee is $100 per late file per calendar day
- Encounter Data Corrections: Within 30 calendar days after notice by Humana of encounters/claims failing X12 (EDI) or Humana edits, Subcontractors must correct all encounter/claim records for which errors should be remedied, and resubmit to Humana. The fee is $1,000 per late resubmission per calendar day after 30 days. A resubmitted file with uncorrected errors is not considered to be a timely resubmission

Our major Subcontractor for this implementation is Avēsis, which provides dental and vision services. Avēsis's Cadence system, which adjudicate both dental and eye care claims and encounters, securely loads enrollment and eligibility 834 information on a daily and monthly basis. Avēsis ensures that additions, deletions, modifications, and adjustments to enrollments are reflected in the system, with accurate begin and end dates. Avēsis's Electronic Data Interchange (EDI) team works diligently to ensure timely file processing.

Avēsis accurately and efficiently transmits encounter data with Humana in accordance with the HIPAA 837 Companion Guides and encounter submission guidelines. Their system extracts all required data elements for Medicaid encounter submissions and captures all standard billing taxonomies, procedure codes, and diagnosis codes to describe services delivered and encounter data transactions. They ensure accuracy, timeliness, and completeness of EDW submissions by adhering to strict process controls. They use pre-processing and post-processing scripts to identify and validate encounter transactions for Humana's Kentucky Medicaid membership.

DST Pharmacy Solutions, the claims adjudicator for HPS (our in-house PBM), is a 24-hour, real-time POS processing engine running on a DB2 database. Humana connects with DST Pharmacy Solutions via a secure virtual private network (VPN) tunnel used by all data transmissions, systems interfaces, and transactions between the two organizations.

e.	Provide a description of the Vendor's data security approach and how the Vendor will comply with Health Insurance Portability and Accountability Act (HIPAA) standards including the protection of data in motion and at rest, staff training and security audits.

Humana is in full compliance with HIPAA standards for information exchange. We have achieved the Council for Affordable Quality Healthcare (CAQH) Committee on Operating Rules for Information Exchange (CORE®) Phase I, II, III, and IV certifications. **Humana is one of only three organizations (and the only health plan) to have achieved CORE® Phase IV certification, ensuring that our electronic claims acknowledgment and adjudication are best in class.**

PROTECTION OF DATA IN MOTION AND AT REST

Humana uses an internally-developed encryption algorithm to protect Confidential (electronic protected health information (ePHI) and personally identifiable information (PII)), Humana Restricted, or Humana Internal

information at rest when stored, contained, accessed, or processed on electronic data storage devices and media, including standalone removable media, desktop hard drives (HD), laptop HD, USB jump drives, flash drives, CD/DVDs, and network and mainframe backup media (e.g., tape, disks). Access to these requires additional authorization and approval. Storage is implemented with data at rest encryption (DARE). DARE is a hardware-based encryption approach that leverages XTS-AES 256-bit data-at-rest-encryption. Humana maintains policies and standards around data encryption that include: "Encryption Policy," "Encryption Standard," "Private and Public Key Infrastructure (PKI) Key Custodian Standard," and "Private and Public Key Infrastructure (PKI) User Standard." These policies and standards can be viewed onsite or by WebEx upon request.

Humana's DARE has the following minimum characteristics:
- Minimum encryption key size is 256 bits
- Master encryption key management is strong or dual-control
- Encryption algorithms are consistent with the Cryptographic Module Validation Program (CMVP) and the National Institute of Standards and Technology (NIST) Special Publication 800-111 (AES)

Humana uses industry-standard transmission and encryption practices to ensure that sensitive (Humana Internal, Humana Restricted, and Confidential) data is transmitted, stored, and received securely. Humana maintains transmission protection policies and standards that include, but are not limited to the following: "Encryption Policy," "Encryption Standard," "Private and Public Key Infrastructure (PKI) Management Policy," "Private and Public Key Infrastructure (PKI) User Standard," "Private and Public Key Infrastructure (PKI) Key Custodian Standard,", "Private and Public Key Infrastructure Management Standard," "Electronic Transmission with Trading Partners Policy," and "Transmission Security Standard." These policies and standards can be viewed on-site or by WebEx upon request.

Humana's controls for transmission apply to the following:
- Web Internet/Intranet/Extranet
- Non-Dedicated Wire Lines
- Dedicated / Private Wire Lines
- Public / Shared Lines (broadband)
- Indoor Wireless LANs (IEEE 802.11x)
- Outdoor Fixed Wireless (IEEE 802.16, 802.20)

Humana's "Transmission Security Standard" contains a guide for associates and contingent workers to use in determining the security requirements for transmissions based on methods and clients. "Https" protocol is used on internal client server connections if there is a chance that sensitive data is involved. Triple Data Encryption Standard (3DES) is used for e-message encryption algorithm. Also, Humana uses SHA-256 hashing technology or stronger.

Humana has established requirements for data transmission with trading partners. An Information Technology Security Agreement (ISA) must be completed and in Humana's possession before any sensitive data exchange. The ISA identifies activities and describes the terms and conditions the trading partner must undertake to exchange data with Humana. All documents required by federal, State, or local regulations must be completed before we will exchange any sensitive Humana information. Before any data that includes Enrollee PHI is exchanged, we require a Business Associate Agreement (BAA) to be on file with Humana's Privacy Office.

All data exchanged with CMS, states, and external partners is channeled through our Electronic Transmission (ET) department. The ET department has its own training and procedures to make sure data integrity and security are given the highest importance.

ASSOCIATE TRAINING

The Training and Awareness team provides cybersecurity education on best practices and emerging threats for all associates. Our program uses an innovative, reward-based, blended learning approach with gamification components promoting engagement.

We offer formal security training through four mechanisms:
- <u>Online</u>: Offer computer-based training (CBT) and user guides for cybersecurity best practices and related projects (i.e., P-Synch User Guide, Secure Mail, File Transfer, Data Classification), including annual Ethics and Compliance
- <u>Phishing</u>: Measure Humana's risk exposure from associates and contingent workforce by simulating real-world criminal phishing attacks. Report campaign metrics to management and use feedback from metrics to drive training and awareness activities
- <u>LADDER</u>: Manage badging and rewards program to encourage associate engagement with cybersecurity topics. Team supports the LADDER platform using incentives, communications, application development and administrative services
- <u>Get Lunched</u>: Host minimum of six Lunch and Learn sessions per year to educate associates on cybersecurity topics (i.e., smartphones, phishing, identity theft). We promote events, which typically include guest speakers, to the entire enterprise and employees are eligible for WOW Bucks (employee incentive program) for participating.

Our broader enterprise-wide awareness program consists of the following:
- <u>Communications</u>: Develop and distribute cyber communications that leverage all available channels, and range from software updates/rollouts to urgent messages about phishing attempts, as well as including a monthly all-associate and contractor email
- <u>Cybersecurity Awareness Week</u>: Hold a week-long series of events to educate all associates on cybersecurity topics applicable to their professional and personal lives
- <u>Video</u>: Assess cybersecurity hot topics and learning opportunities for associates. After video script development, production, and editing, we develop a deployment strategy to reach the most associates possible
- <u>SharePoint</u>: Provide programming services to present all training and awareness materials in a central website for associates. Website includes videos, training, and articles. Manage additional sites that support EIP and other EIP Teams, and Security Audits.

Humana purposely structures its systems to interact with compliance and regulatory agencies. Humana uses multiple third parties and external organizations to validate compliance with HIPAA. Humana's primary source of third-party regulatory compliance verification is the Health Information Trust Alliance (HITRUST) Common Security Framework (CSF) assessment, conducted annually. In addition to the HITRUST CSF assessment, Humana undergoes an annual Payment Card Industry (PCI) Data Security Standards (DSS) assessment by Solutionary, an independent, third-party assessor.

To supplement these large-scale, overarching assessments, Humana undergoes annual Verizon penetration testing and quarterly Qualys network vulnerability assessments, which ensure our cloud security meets the highest industry standards. Humana has its own HIPAA compliance review tool called the Humana Integrated Control Framework (HICF), which we refresh annually. To remain current with HIPAA updates, Humana participates in both the Workgroup for Electronic Data Interchange (WEDI) and ANSI X12 Standards Workgroup. Humana uses the Edifecs X engine with Spec builder to convert outbound data to X12 HIPAA-compliant formats and validate the inbound transactions. Availity, our main clearinghouse trading partner, also uses Edifecs to validate HIPAA on all transactions before they are sent to Humana.

Humana complies with all State and federal breach notification laws, rules, and regulations. The Humana Privacy Office has departmental procedures to investigate and remediate incidents, as well as notify appropriate parties. The Privacy Office follows all requirements under state and federal law, including the Health Information Technology for Economic and Clinical Health (HITECH) Act and the HIPAA Omnibus Rule (2013). Risks associated

with an incident are evaluated and appropriate actions taken to reduce or eliminate the risks. Humana's Privacy Office has guidelines and procedures to determine root causes and work through corrective actions, whether that be system fixes, procedural enhancements, or appropriate disciplinary action and enforcement of actions against any associate or business associate who commits a violation of Humana's information protection policies and procedures.

f.	Describe any proposed system changes or enhancements that the Vendor is contemplating making during the anticipated Contract Term, including subcontracting all or part of the system. Describe how the Vendor will ensure operations are not disrupted.

Table I.C.6-4 shows the enhancements we plan to undertake to improve overall capabilities and respond to specific needs of the Kentucky Medicaid program. These enhancements reflect ongoing efforts to meet the expressed needs of providers, Enrollees, state Medicaid programs, or other clients. **These enhancements are being undertaken by Humana's IT resources, will not result in subcontracting any part of the MIS, and will not disrupt ongoing operations.**

> **Humana IT received the 2019 Enterprise Disruptor Award** from Arista Networks, recognizing forward-thinking approaches to software design and infrastructure strategy.

For example, the phased replacement of Edifecs encounter processing with our internal (Humana-developed) HERO, as previously mentioned, is based on the opportunity to make improvements using our own design informed by decades of experience with encounter processing. During the transition to HERO, we will continue to use the latest versions of Edifecs, which will allow us to implement the duplicate logic and provider logic supplied by the Commonwealth, resulting in the submission of a more accurate and complete encounter file.

Some of the advantages of transitioning to HERO include:

- Additional dashboards for real-time tracking, monitoring, and routing of our encounter inventory. This gives Humana the ability to provide up-to-date reporting, as well as an immediate start on error resolution for rejected encounters
- The ability to perform bulk updates, in which numerous changes can be executed on multiple encounters in one action, thereby greatly reducing the amount of time spent correcting erroneous encounters and ensuring Humana meets timeliness standards
- More extensive data sources than those available through Edifecs. With more data points, Humana can derive how certain encounter rejections are originating in a quicker, more efficient manner, leading to earlier resolution of errors
- Humana's ownership of this software so we can customize it to meet our needs for encounter creation and tracking

We are also undertaking a modernization of the PMDM system that will continue into 2021. This initiative will improve the provider and Enrollee experiences when accessing Humana provider data by more tightly integrating Humana's provider functionality. For example, this modernization will accelerate the timing of an enrollee's PCP assignment when assignment is required. The goals of the PMDM modernization project are to: make the provider ecosystem more accessible and usable for providers and Enrollees; provide more of a 360-view of providers incorporating more data elements of interest; make provider data available more quickly and at a lower cost; and allow for user migration from the old to the new system over time. There are several use cases planned for the new system, including PCP enrollment and PCP lookup. The project will involve updating technology, including use of a graph database engine, Kafka StreamSets, and MongoDB.

As noted above in section I.C.6.b, we have several risk mitigation strategies underway for these new developments, including:

- Use of proven methodologies for SDLC, change management, project management, and risk management

- Risk governance and oversight based on our ERM approach
- Activation of a Command Center operation after every software production turn to immediately identify and remediate any issue which could impact Enrollees or providers
- Phased development of each project, when appropriate, including parallel use of existing systems until each phase has been completed and evaluated to be successful
- Continuous communication with internal and external stakeholders, including DMS, led by our Kentucky Medicaid MIS Director, Tom Payne

Table I.C.6-4: System Enhancements or Upgrades

System	Description of Upgrade/Enhancement	Status	Completion Date
Enrollee	None	N/A	N/A
Third-Party Liability	None	N/A	N/A
Encounters/Claims Processing	Phased replacement of encounter processing system (Edifecs) with Humana-developed system (HERO) to enhance data integration and reporting	Ongoing	2020-2022
Financial	None	N/A	N/A
Utilization Data/Quality Improvement	None	N/A	N/A
SURS	None	N/A	N/A
Reference	None	N/A	N/A
Provider	Modernization of PMDM	Ongoing	PMDM (2021)
Enrollee Communications	None	N/A	N/A