Executive Summary

Accountable Care Organizations (ACOs) center on the overall well-being of the patient and attempt to align the services of providers and payers to the benefit of the patient. Groups that are forming their ACO information network are turning to Healthcare Community Online (HCO) from AT&T. By addressing the potential issues contemplated by ACOs, HCO overcomes typical barriers to bringing a sustainable healthcare ecosystem like an ACO to a community through its integral design:

- Physician Practice Integration
- Payer Interoperability and Data Sharing
- Healthcare Information Exchange (HIE) to HIE Interaction and Connectivity
Background – Medicare ACOs
The Patient Protection and Affordable Care Act (PPACA) encourages the formation of Accountable Care Organizations (ACOs) for Medicare to help reduce healthcare costs while improving quality of care. CMS defines an ACO as “an organization of health care providers that agrees to be accountable for the quality, cost, and overall care of Medicare beneficiaries who are enrolled in the traditional fee-for-service program who are assigned to it.” The Congressional Budget Office (CBO) estimates that ACOs will save $4.9 billion over 10 years. In the August 2, 2010 CMS Update, “Affordable Care Act Update: Implementing Medicare Cost Savings”, further defines ACOs:

“The Affordable Care Act promotes team-based health care through Accountable Care Organizations (ACOs) under the Medicare shared savings program. ACOs create delivery systems that encourage and support teams of physicians, hospitals, and other health care providers to collaboratively manage and coordinate care for Medicare beneficiaries. If these providers meet certain quality and efficiency benchmarks, they may receive a share of any savings from reducing duplicative services, improving productivity, minimizing paperwork, or otherwise improving cost efficiency. While the CMS Office of the Actuary (OAct) estimates that this provision will be budget neutral, the CBO has projected that it will reduce Medicare spending by nearly $5 billion over the next ten years. CMS is working to make the program operational by January 1, 2012. Proposed rules will be issued later this year and CMS and its partner organizations will continue to hold public forums to foster ACO development and coordinate with on-going private sector efforts.”

Physician Practice Integration
The current problem with integrating physicians, hospitals and payers to create an ACO is a direct result of the way healthcare has historically been organized and lack of incentives for providers to share their patient information outside their own practice. Healthcare has been a service delivered to communities through information silos. According to government statistics, the average practice in this country has 2.5 physicians. These small-to-medium independent physician offices often have minimal IT infrastructure. Their primary IT tool is their practice management system (PMS), which is typically a stand-alone medical billing system. There are more than 200 different manufacturers of practice management systems running on a wide variety of computing platforms. Also, some physicians’ offices still do not have a full time connection to the Internet. Yet these practice management systems are the most accurate data repository for personal health information because this is the point at which most people interact with the healthcare system most often. Physicians focus on treating patients, not improving their IT infrastructure. There has been little incentive to invest in IT solutions that require significant investment of time or money. Even solutions that are free to the physician will fail if they require significant investment of time or mandate significant changes to the office’s existing workflow. Likewise, physicians are often resistant to upgrade their practice management systems to the current version or release. The initial investment to install the system was made at the time and often a technical person to implement upgrades is not available. As a result, the physician practice chooses to remain with the initially installed version. For example, many physician offices still use DOS-based practice management systems.

The AT&T HCO solution offers the ACO the ability to use existing infrastructure, data sources and workflows. HCO is scalable, flexible, and adaptable to the myriad of existing technologies and standards in use by various Accountable Care Organizations. The various participants in the ACO can readily exchange data regardless of their level of technical sophistication. Our methodology can be applied to existing clinical applications to allow the practice or user to leverage their existing investment and then identify the type of application(s) needed to fill in the gaps. HCO is designed to minimize disruption to existing processes and to utilize existing investments. We connect to whatever systems and data sources stakeholders are using today. The end result is that the stakeholders spend their time in productive ways – resulting in improved outcomes and reduced cost of care. Disruption is minimized and attention is focused on improving processes and care delivery.

Silos and Multiple PMS Systems
ACOs face the following challenges to effectively manage costs and promote patient care and quality when trying to connect existing Practice Management Systems (PMS) into the ACO:

1. Physicians use their PMS to manage their day-to-day workflow. The difficulty is that patient information is not easily accessible electronically from many PMS systems that may be more business-workflow centric rather than clinical workflow centric.

2. Information about procedures, claims, outcomes, etc. is stored in multiple systems and does not provide an aggregated view of patient information that can be shared electronically.

3. Many physician offices are still using paper storage records for their clinical patient files. Electronic Medical Record (EMR) systems promise to solve the problem for physicians on an office-by-office basis, however the challenge remains as it relates to acquiring the information from all service providers in a form that can be easily imported.

PMS Integration Options:

- **Legacy PMS**
  - Extracts data from existing legacy systems without disrupting workflow
- **Non Disruptive**
  - Captures changes and updates without disruptions
- **Be Inexpensive**
  - Low cost of entry for physician office to adopt
- **Self Maintaining**
  - Can be self-installed, self-monitoring and self-healing due to lack of on-site IT staff
- **Variety of Tools**
  - Includes a mix of tools and approaches to accept wide range of PMS applications in the exchange
- **Clinical Systems & Data Source**
  - Integrates clinical data throughout ambulatory acute care, imaging, lab & other clinical systems
4. An ACO needs a healthcare information network that shares knowledge about outcomes and best practices using provider and payer data. Current initiatives at the Centers for Disease Control (CDC) will track best practices and enable the rapid identification of an outbreak of communicable diseases or infections once regional or statewide HIEs are able to share clinical data.

Connecting all the new data sources and components is challenging. However, the real challenge in building these networks is connecting all of the legacy systems in physicians’ offices.

Connecting Physician Offices Efficiently
Any prospective connectivity solution needs to have the following components to be effective:

- The solution has to extract existing patient information from all legacy practice management systems in a manner that does not significantly alter the office’s existing clinical or administrative workflows.
- The solution must be able to capture changes and updates to the information without significantly altering clinical and administrative workflow.
- The solution should be affordable.
- Because of the lack of on-site IT staff at most practices, the solution should be self-installing, self-monitoring and self-healing.
- Due to the wide diversity of practice management systems, the solution must include a mix of tools and approaches.

**An ACO Exchange Must Have These Components for Physician Offices:**

- **Vendor Specific API:**
  - PMS vendor has created API
  - Exchange has created API
  - HCO has over 220 APIs for PMS already available

- **Direct Database**
  - Data extracted through a standard ODBC interface
  - Exchange extracts data directly from PMS

- **Software Printer Tap**
  - Data extracted via print driver
  - Works best when workflow includes printing transaction forms on demand or on a scheduled basis

- **Hardware Print Tap**
  - Adds a printer connector to capture data in print stream
  - Like a software printer tap, best when workflow includes printing forms on demand or on a scheduled basis

- **Screen Scraping**
  - Data extraction depends on what patient information is displayed on screen

**Current Options for Integrating PMS Applications**
A mix of tools and approaches are necessary to integrate all the types of physician practice legacy systems:

- **Vendor Specific API**
  A method created by the PMS vendor to deliver the necessary information under program control.

**Direct Database**
Through either a standard ODBC interface or vendor specific interfaces, the interface program extracts data directly from the practice management system database.

**Software Printer Tap**
To extract the information from the print stream, add a special print driver to the practice management system. This interface works best when the existing workflow includes printing transaction forms (face sheet, encounter form, super bill, etc.). It can also work in conjunction with interfaces which force a particular print process to occur on a scheduled or demand basis.

**Hardware Print Tap**
Add a printer connection to capture patient data from the print stream. Similar to the Software Printer Tap, this interface works best when the existing workflow includes printing transaction forms (face sheet, encounter form, super bill, etc.). It can also work in conjunction with interfaces that force a particular print process to occur on a scheduled or demand basis.

**Screen Scraping**
The interface depends on the patient information being displayed on the screen of a PC or terminal.

HCO uses tools that are completely automatic, require no changes to workflow, and utilize existing interfaces. Where possible, these are either the vendor API or database tools and HCO has over 220 APIs for common PMS systems (for a current list of Ambulatory Interfaces, please contact your AT&T representative). However, the API and database solutions do not work in all circumstances. HCO can use any of the other tools and approaches listed above to integrate their PMS. HCO can be remotely installed and does not require an onsite visit by a technical person. AT&T also has a tool designed specifically for low-tech self-installation which is also self-monitoring and self-healing.

AT&T HCO is a vendor-neutral solution that can address the breadth of the legacy market, which is a key element in the success of any ACO integrated network.

**Payer Interoperability and Data Sharing**
One of the functions of an ACO is to create an ecosystem that supports data sharing across the continuum of healthcare to manage costs and improve quality. As a result of the clinical encounter, clinical and business office processes incur many cycles of data that bear the greatest potential for cost savings and improved quality of care. Here are seven reasons why it is critical to have payer interoperability and data sharing:

**1. Cost Savings**
It is widely recognized that health care reform needs to include measures that lower the administrative burden associated with billing and claims. Many of the cost saving models concentrate on the cycle that occurs after a claim is sent to payers for adjudication and claims adjustments. By making payer data available through the ACO, claims simplification can be enhanced.
2. Enhanced Eligibility
Through the use of 270 and 271 transactions for eligibility and 276, 277 and 278 transactions for pre-authorization, providers are able to gauge the proper treatment options. Often checks for eligibility or pre-authorizations are only done for higher risk or higher cost procedures, however ACOs should look at providing these checks for all patients to help determine the best treatment options. An ACO provides more knowledge of prior patient treatments across multiple providers, best practices and outcomes would help the provider reduce unnecessary or redundant treatments, thereby resulting in cost-savings for payers and cash-flow improvements for providers.

3. Clinical Decision Support
The data from eligibility and pre-authorization checking processes can simplify clinical decision support. As an example, a provider could query claims records to see if a patient has had an annual physical the last 12 months and send a reminder or let the patient’s primary care provider (PCP) know that an annual physical is due.

4. The Role of the Payer in Accountable Care Organizations
Increasingly there is an expectation that a provider is held accountable for a patient’s overall healthcare even when the patient may be seen by a number of providers. While this is the aim of ACOs, in many cases the provider does not have a full picture of the patient’s treatment plan across the care community. Often the most complete picture of treatments resides with the payer’s claim data for a member.

Interoperability between payers and providers enables ACOs to see a more complete picture of the treatments, medications and procedures a patient has received across care settings. ICD-9 and CPT codes are often optimized for billing purposes. Ideally these codes should be coupled with primary clinical data, so a provider has the ability to see a patient’s medication history as well as other prescriptions and treatment options they have received from another provider.

5. Member Lifecycle
There has been a steady increase in the movement of families from payer to payer, especially when the member becomes eligible for Medicare. The need for continuity of care becomes more important for ACOs. Being able to see a longitudinal view of the patient’s health record and the patient’s claims record can provide ACO participating clinicians invaluable information. They can effectively treat the patient’s healthcare needs, even if a provider such as a specialist is given only a segment of that patient’s overall treatment plan. Likewise, payers need to access records of previous or recent procedures done through another payer for a newly insured life.

6. Mature Standards In Billing And Claims
Payer interoperability and data exchange have standards that are more concrete than standards on the pure clinical side. Standards on the clinical side are currently just published in draft form and are rapidly evolving with the advent of the National Health Information Network (NHIN) Connect and Direct projects. On the business office side claims attachments and eligibility have been around for many years; and therefore, these more mature HIPAA transaction standards are currently more reliable than the evolving clinical data interfaces.

### Payer Interoperability: Key to Successful ACO Data Sharing Across the Continuum:

<table>
<thead>
<tr>
<th>Cost Savings &amp; Sustainability</th>
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<tbody>
<tr>
<td>• Simplify claims processing by making more payer data available</td>
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<td>• Reduce adjudication and claims adjustments</td>
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<tr>
<th>Enhance Eligibility</th>
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<tr>
<td>• Use pre-authorizations (276/277/278 transactions) for all patients, not just high risk</td>
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<tr>
<td>• Determine multi-payer coverage upfront (especially for Medicare patients)</td>
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<th>Clinical Decision Support</th>
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<tr>
<td>• Use payer claims history to alert for preventive care such as annual physicals</td>
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<td>• Check registries for pertinent claims data for upcoming patient encounter</td>
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<th>Player ACO Role</th>
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<tr>
<td>• Assist providers be accountable for overall patient health by creating complete patient history</td>
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<tr>
<td>• Identify multiple scripts, conflicting treatments by coupling ICD-9 &amp; CPT with clinical data</td>
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<tr>
<th>Member Lifecycle</th>
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<tr>
<td>• Medical history shared when patient moves from private payer to Medicare</td>
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<tr>
<td>• Particularly critical when new Medicare member to have longitudinal view</td>
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<tr>
<th>Billing / Claims Standards</th>
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<tr>
<td>• Better predictability with more mature HIPAA transaction sets than with evolving clinical standards for transaction sets</td>
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7. Creating A Sustainable Model For HIE
The payer side of healthcare is poised to achieve real savings while in many cases the savings model or return on investment (ROI) for purely clinical-based HIEs is hard to quantify. As a result, providers have been reluctant to pay for the on-going costs of maintaining a HIE. But claims simplification, faster payment, more visibility into eligibility, availability of continuity of records as patients change payers or providers, and a more complete longitudinal view of the patient creates a model with more realizable savings and a truly sustainable business model for an ACO.

The AT&T HCO solution can assist the members of an ACO with payer connectivity and data sharing. HCO uses eMPI and RLS to create a single patient or member view for each ACO constituent and their appropriate access rights. HCO uses standard formats, like HL7 and X12, and can provide access to payer information such as eligibility verification, prior authorization approvals, patient medication history and claims processing. Some payers have created claims-based health records for their patients and have made these available to providers via web-based HCO interfaces. These claims-based health records provide details on care interactions for a patient and could potentially be interfaced within the ACO to provide greater details on prescriptions, treatments, surgeries, immunizations, etc. to create a more complete longitudinal patient record.

### HIE to HIE Interaction and Connectivity
AT&T has long recognized that ‘HIE to HIE’ interactions are key to a long-term national vision and for ACOs to exchange data with other HIEs. Our commitment to HIE to HIE interaction is reflected in our continued adoption of the NHIN protocols, commitment to cross-domain federation, and our strong emphasis on security identification of users and patients. Particularly as ACOs become operational, they...
need access to and from state and regional HIEs as part of building the longitudinal health record of ACO members. ACOs need to exchange data for registries (immunization, trauma, domestic abuse, controlled substances, etc.), Medicaid claims-based records, and to use health information from other state or federal agencies, such as Medicare, the Veterans Administration, Indian Health Services, or the Department of Defense, et cetera. Also, ACOs will need to be able to connect to state HIEs to share their public health clinical data with the appropriate state agencies or the CDC.

**HIE to HIE Connectivity:**

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<th><strong>Trust</strong></th>
<th>HCO as the framework for trust</th>
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<td><strong>Compliance</strong></td>
<td>Full auditability and HIPAA compliance</td>
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<td><strong>State Laws</strong></td>
<td>Able to deal with multiple state laws</td>
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<tr>
<td><strong>Non-Repudiation</strong></td>
<td>Handles non-repudiation of clinical data</td>
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<tr>
<td><strong>Trust Broker</strong></td>
<td>Issues certificates and management of trust through identity broker</td>
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<tr>
<td><strong>Consent</strong></td>
<td>Accommodates different patient consent, opt-in &amp; opt-out model</td>
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<tr>
<td><strong>Audit &amp; Reporting</strong></td>
<td>Discoverability of data and accounting of disclosures</td>
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**An Organizationally Neutral Approach to Technology**

HIE to HIE interaction will be driven by many factors; including usability, support for clinical workflows, the completeness of the patient information, the quality of the data, and the ability to feed data back into the source systems if necessary. A key design factor for HCO was to interconnect systems wherever they reside. An ACO, a hospital HIE, a regional HIE or a federal agency are all data sources with different protocols and workflows. In many instances, the role of a HIE is to be a conduit for data and not the end point for data. To enable connectivity between many kinds of health ecosystems, considerations include:

- Full auditability and compliance with HIPAA and other federal regulations
- The ability to deal with state laws that may change as data crosses state lines
- Non-repudiation of clinical data
- The issuing of certificates and management of trust through identity brokers
- The ability to accommodate different models for patient consent, opt-in and opt-out
- The discoverability of data and responsibility for accounting of disclosures

HCO was designed to address these considerations with built-in robust privacy and security functionality that protects data and access rights. HCO uses industry-leading authorization and access management technologies, robust audit logging, full system monitoring and disaster recovery functionality, coupled with flexible patient consent options. HCO is fully compliant with all applicable state and federal security regulations and continues to be vigilant in maintaining its standing. In addition to being HIPAA compliant, AT&T maintains SAS 70 compliance for HCO. The platform’s robust security framework has been federally certified and is currently in use within the Department of Justice. HCO’s Trusted Identity Framework addresses user authorization, authentication, non-repudiation, encryption, administration, and audit logging requirements. The AT&T HCO provides self-service administration tools, identity verification services, delegated administration tools designed for complex cross-organization provisioning scenarios, and support for industry-specific user attributes. These capabilities also include conventional directory services as well as identity synchronization capabilities often associated with meta- and virtual directory products.

The Trusted Identity Provider includes logging and reporting of all relevant activity, as well as an audit tool that supports auditing of user grants in a federated model involving many different organizations. This tool and the associated audit logs provide the reporting necessary for emergency access to patient data and any accounting for associated disclosures. In the typical HCO design, a provider attests to patient authorization/consent each time patient data is accessed. Therefore, an audit log entry is generated for each access transaction. Any investigation or reporting necessary can be supported through these audit logs and the tools associated with them.

Trusted Identity Broker manages the federation of user identities across security enclaves. HCO allows a user to login at their local security domain (e.g., their office), federates their identity to the central hub, and then selects from a variety of external services that are all accessible without requiring a secondary login (e.g., a Single Sign On (SSO)). The HCO Trusted Identity Broker also supports the direct authentication of users, which is preferred for smaller organizations that may not have the technical means to federate users from their local domain.

The Trusted Identity Broker provides the facilities for managing network connections and the certificate status (to ensure highly secure, reliable transactions between connected entities). It also performs federation protocol translation, user attribute mapping, user ID mapping, and keeps a log of all traffic flow. By brokering trust and providing protocol translation, identity providers and service providers no longer have to be concerned about which standard to support, and can select the technology or standard best suited to their back-end environment, while simultaneously improving their ability to interoperate with a variety of existing or new federation endpoints.

**National Health Information Network (NHIN)**

As another example of HIE to HIE connectivity, AT&T fully supports the NHIN Open Connect infrastructure and standards for enabling connectivity on a national level. HCO can interoperate with other NHIN constituents via a NHIN Gateway to facilitate and promote care coordination across various healthcare ecosystems for interstate care coordination.
A demonstration of HCO’s NHIN Gateway was showcased at the HIMSS 2010 Connect-a-Thon. It illustrated how a patient CCD (continuity of care document (HITSP/C32)) that included medications, allergies, and problem lists could be exchanged between Health Care I.T. Standards & Interoperability Coalition members using NHIN Connect.

**NHIN **

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<th>NHIN Expansion</th>
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<tr>
<td>• Expanding services and standards to reach a higher audience</td>
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<th>Pilot Phase</th>
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<td>• HCO Solution is signed up as a pilot project</td>
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<th>Core Services</th>
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<td>• HIT addressing, certificates and transport mechanisms</td>
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<th>Push vs. Pull</th>
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<tbody>
<tr>
<td>• Allows for direct push communications between parties who know each other</td>
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<th>Continuity of Care</th>
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<td>• Moves the industry a step closer to true implementation of the CCR/CCD</td>
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<th>Direct vs. Connect</th>
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<tr>
<td>• Does not replace NHIN Connect, fulfills a different function and set of core use cases</td>
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**Platform Services and Framework**

The AT&T HCO framework provides a common platform across healthcare organizations. This allows ACO physicians, hospitals and payers to achieve efficiencies, expertise and economies of scale. The framework is a Web 2.0 based environment that is pre-integrated to all the other parts of the overall AT&T HCO platform, including any-to-any messaging engine and back-office integration software for EMR/PMS connectivity, security services, and identity management services. HCO platform is a highly-scalable and flexible integration platform that offers support for a variety of communication protocols, data formats and messaging related functions and features including, but not limited to:

- Healthcare industry standards including HL7, EDI, x12, and ebXML
- Integrating the Healthcare Enterprise (IHE) Profile support CCD, CDA, XDS/XCA, PIX/PDQ
- Connectivity nationally using NHIN Connect
- Support for an XDS Repository
- Numerous communication protocols that include FTP(s), HTTP(s), MQ, Web Services and ebXML
- Synchronous and asynchronous messaging
- Any-to-any document and code set translation and mapping
- Real-time messaging to and from Web Services
- End-to-end message tracking and logging
- Configurable notification service
- Exception handling services
- Dynamic message routing and delivery
- Monitoring of system and end-point connections
- Fully scalable to support high message volume and response times

**Conclusion**

The AT&T HCO framework creates a highly secure, dynamic dashboard which can serve as the single point for aggregation and sharing of information across an ACO. AT&T can assist organizations develop an ACO information network using Healthcare Community Online (HCO) by overcoming typical integration and connectivity barriers to bring a sustainable healthcare ecosystem that is adaptive to multiple data sources and users. HCO is standards-based, based on open standards and technologies, and fully supports best practices and standards for information technology infrastructure. Every investment in HCO will build incrementally toward a sustainable solution for ACOs.

**Notes**


2. Congressional Budget Office, “Estimate of direct spending and revenue effects for the amendment in the nature of a substitute released on March 18, 2010”.


For more information contact your AT&T Representative or visit us at www.att.com/hco.