

HIMSS18調查報告

平成 30 年 8 月

標準化推進部会 国際標準化委員会

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はじめに

標準化推進部会·国際標準化委員会 委員長 岡田 真一

HIMSS18 は、2018 年 3 月 5 日から 3 月 9 日の 5 日間、ネバダ州ラスベガスの Sands Expo Convention centerで開催されました。例年通り42,000 人以上の参加(43,979 人)者、1,300 以上の出展企業(1,375 社)、300 を超える教育セッションという世界最大規模のヘルスケア IT 学会・展示会となります。

JAHIS では例年グローバルの視点から、HIMSS 視察を定点観測として実施しており、本年から1名増員し4名の有識者による調査を実施しました。



図表 INT-1: HIMSS オープニングキーノートセッションの開始前の様子

トランプ大統領が就任して 1 年以上経過しました。就任前から反対していた ACA(Affordable Care Act ; 通称オバマケア)について廃止の訴えはトーンダウンしたようでしたが、HIMSS 開催前には

以下のような動きがありました。

2017 年 11 月 30 日には American Hospital Association (AHA) の社長兼 CEO がトランプ大統領に宛てた書簡で、Meaningful Use の第 3 ステージは医療機関が規制をクリアするためだけに多大な投資を必要とし、質の向上には貢献しないとして第 3 ステージのキャンセルが要請されました。続いて 2018 年 2 月 21 日にホワイトハウスが発表した大統領経済報告では、Meaningful Use と品質の指標が、小規模で独立した医療機関の負荷を過度に大きくしていると主張されています。政府が要求する電子報告書を提出するための EHR のコストが払い切れず、最終的には患者の医療費負担が上昇しているという内容となっていました。これらの延長線上で何か動きがあるのでしょうか?

また、個人情報保護に関しては従来の HIPPA (Health Insurance Portability and Accountability Act) に加えて、2018年5月からEU 一般データ保護規則 GDPR(General Data Protection Regulation)が適用されました。この影響はどのようなものとなるのでしょうか? 医療健康分野でもホットな話題となりつつある Block chain や AI の最新動向はどのようなものでしょうか? Cyber Security 関連はどのような動向でしょうか? など特に注目すべきトピックスを中心にレポートとして纏めたのが本報告書となります。

本報告書において、このような米国におけるヘルスケア IT の最新動向や熱気を少しでも感じ取って頂き、会員各社における事業の一助となれば幸甚です。

平成30年6月1日

1. 出張者、日程

1.1. 出張者

岡田 真一 (標準化推進部会・国際標準化委員会委員長)

稲岡 則子 (標準化推進部会・国際標準化委員会委員)

田口 剛 (標準化推進部会・国際標準化委員会委員)

中野 直樹 (標準化推進部会・国際標準化委員会委員)

1.2. 日程

開催日程: 2018年3月5日~9日

開催場所: The Venetian Resort Hotel Casino,

3355 Las Vegas Blvd S, Las Vegas, NV 89109

1.3. 次回日程(参考)

開催日程: 2019年2月11日~15日

開催場所: Orange County Convention Center,

9800 International Drive, Orlando, FL 32819

2. HIMSS18 全体概要

「はじめに」章にも掲載の通り、HIMSS18は参加者数42,000人以上、出展企業数1,300以上、教育セッション数300位上と、例年通り活況なものでした。

テーマとして、トランプ政権により変化が出始めている Meaningful Use、Coordinated and Connected Care や Population Health Management 等の様に Patient Engagement の充実化、Blockchain の多面的な応用や AI、BigData Analytics 等の先端技術の利活用、Cyber Security の充足化と相互運用性の向上、に関する展示やセッションは目立ったものでした。

この中でも特に Blockchain については、対象範囲の拡大や標準化の推進等バズワードになっていた 点や、Patient Engagement による拡充は特筆すべき変化点として捉えられ、本報告書でも重点的 に取り上げているのでご参照頂きたい。

3. テーマ別報告

3.1 Opening Keynote

基調講演は、前半が米 Google の元 CEO である Eric Schmidt 氏による講演、後半は HIMSS の CEO である Hal Wolf 氏と Schmidt 氏との対談でした。

Schmidt 氏は、機械学習やディープラーニングなどに代表される AI 技術の急速な進歩とこれらが持つ無限の可能性について、様々な例を挙げながら述べ、これら技術を医療情報分野に積極的に取り込んでいくことが今後の医療にとっていかに重要であるかを強調しました。同氏は、ご自身が思い描く医療の例として、Dr. Liz と呼ぶ音声アシスタントを示しました。Dr. Liz は、マイクとスピーカーを通じて患者とコミュニケーションを行い、その会話を文字に変換し、巨大なデータベースに蓄積された莫大な情報に基づいて、医師にエビデンスベースの提案を行い、診察をフォローします。「私がいま話したことはすべて、今日か、少なくとも数年以内には実現することができる。」



同氏はこう述べ、既に機械学習が遺伝子、病理、眼科、循環器、脳、血管系など多くの分野で成功を収めていることを示しました。ただ、AI によるこのようなデータ分類は難しいことではなく、自分が目指しているものはもっと先にあると彼は言います。それは、Dr. Liz の最大の特徴でもある「予測」機能となります。「私が求めているのは、予測。それは医師による早期介入を可能とするからだ。」「我々人間は自分の運命を予測することはできない。しかし、機械にはそれができる。」との発言がありました。

今年の2月、Google と系列の Verily Life Science は、ディープラーニングを使って網膜画像から心血管リスク因子を予測することができるという研究論文を発表しました。Schmidt 氏はこのことを例として挙げ、さらにこの技術が糖尿病や網膜症、黄斑変性などにも応用されていること、予測技術が遠い未来の話ではないことを示しました。また、この予測機能は患者だけのためにあるものではないという点にも言及しました。「最近の研究によると、医師が患者1人を1時間診るために、2時間の管理時間が必要となるという。医師の50%がバーンアウトするのも無理はない。」「警告疲労。統合されていない多くの異なるシステムが個々にアラームを鳴らし続け、医療従事者に常にプレッシャーを与え続けている。」と、医療機関における問題についても述べ、医師がより一層医師の本領を発揮できる環境を作り出していくことが必要だと述べました。

人間とAIの関係についてWolf 氏が問うと、それぞれ得意不得手があり、それぞれ役割があり、共存関係にあると Schmidt 氏は答え、以下のように話しました。

「人間は判断、洞察、想像を膨らませること、クリエイティブなことが得意だ。」

「ディシジョンメーカーはコンピュータであってはならない。なぜなら低い確率ではあるがミスをするからだ。」 「医療ループには、人間が必要だ。医師や看護師といった現実のエキスパートが必要だ。コンピュータは 彼らが適切な判断を行うためのデータソースである。」

ただ、ビジョンの実現には、AI 技術の進歩に加えて、スマートフォンやインターネット、電子メールに代表される、かつては考えられなかったようなキラーアプリによる業界の変化が欠かせないと、同氏は併せて述べました。そしてこのキラーアプリがターゲットにするのは、同氏がクリニカルデータウェアハウスと呼ぶ、「すべてのデータ、すべての多様なデータセットを保有し、キュレートされ、標準化され、使いやすく、豊富な API による高度な分析を可能とする、臨床データ保管庫」となります。クリニカルデータウェアハウスは EHR に取って代わるものではなく、EHR を補完する位置づけにあります。

「そこに到達する唯一の方法は、クラウドを手にすることである。クラウドは皆さんのデータセンターよりもはるか安全であり、皆さんのデータセンターよりもはるかに HIPPA に準拠しており、使い勝手もよい。もちろん Google クラウドを使ってもらいたいが、何もしないくらいなら、競合他社のクラウドでも採用してもらいたい。」とクラウドへの移行を強く求めていました。

世界のテクノロジーの最先端を牽引する Google という企業を率いてきた元 CEO は、いまの医療情報業界の発展にもどかしさを感じずにはいられないようでした。最後に Wolf 氏が医療情報業界へのメッセージを求めると、「皆さんは遅れている。前に進む時だ。データ+クラウド+ネットワーク+強化学習+機械学習+統合ソリューション+巨大なデータストア。これが公式だ。」と基調講演を締め括りました。

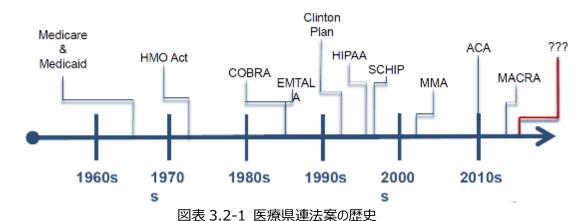
3.2 Meaningful Use(EHR インセンティブ・プログラム)

Meaningful Use の状況

2011 年に「データ収集と共有」"Data capturing and sharing"をテーマとしてスタートした MU (Meaningful Use) は、その後「先進診療プロセス」"Advanced Clinical processes"、「アウトカムの改善」"Improved outcomes"と拡張し、2018 年から開始される MACRA 法の下でのインセンティブ・プログラムに組み込まれました。インセンティブ・プログラムは、MIPS (Merit-Based Incentive Payments System) とAPM(Alternative Payment Models)の2つからの選択制となっています。

下図表 3.2-1 は医療県連法案の簡単な歴史を表したものとなります。

A Brief History of Health Care Legislation



[出典] Session#PH1

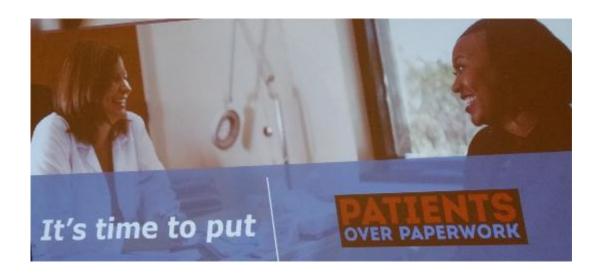
"At the Crossroads of Volume and Value – You are Here" David Muhlestein, Chief Research Officer, Leavitt Partners

"Reform Meaningful Use"

しかし、今回 CMS の Administrator である Seema Verma 氏は「Meaningful Use を刷新 (Reform) する」と声高々に宣言しました。政府はMUの完全な見直しを望んでおり、2018年末まで にパブリックコメントに公開されているプログラムを変更するための一連の提案ルールを発表すると述べました。 これはトランプ政権としてこれまでの医療政策との違いを強く主張するもので、刷新の基本的な考え 方は、相互運用性を完璧なものとし、患者中心の医療にしていくこととなります。

"Patients over paper work"

"書類作成よりも患者を重視する"として、医療者の事務処理を減らして臨床の時間を増やすことがテーマに挙げられていました。同氏は「これまでは医療者ファーストで患者ファーストではなかった。これからは患者ファーストで行く(図表 3.2-2)。これまで多額の資金を医療機関のIT 化に投資してきたはずなのに、事務処理は減らず、未だに医療機関の間での情報のやりとりは Fax。これはいったいどういうことなのか?」と疑問を投げかけていました。



図表 3.2-2 Patients over paper work

「出典] Session#17

"How CMS is Leveraging Information and Technology in Medicare and Medicaid" Seema Verma, Administrator, Centers for Medicare and Medicaid Services

"MyHealthEData"

「"MyHealtEData"は、患者が自分の全医療記録のコピーを電子的に確実に受け取るようにするもの(図表 3.2-3)」。同氏の夫が昨年の夏に急に倒れ、医者から夫の病歴を尋ねられたが、的確に答えられなかったことや、退院時にどのような判断に基づいてどのような処置が行われたかを知りたいので全記録を出してほしいと要求したところ、医者にいやな顔をされたあげく、5 枚の紙と 1 枚の CD-ROM が渡されたエピソードを語り、「今後どう使えばよいのか?私たち患者のデータは私たち自身がコントロールするべきだ」と強く訴えていました。



図表 3.2-3 MyhealthEData

[出典] Session#17

"How CMS is Leveraging Information and Technology in Medicare and Medicaid" Seema Verma, Administrator, Centers for Medicare and Medicaid Services

また、「すべての保険会社に患者の請求データを電子的に提供するよう求めている。病院がデータ提供を拒絶していないことを確認するための対策も講じている。21st Century Cures Act ではベンダや医療機関が情報提供を拒絶していないことを証明する必要があり、拒絶した場合には何らかのペナルティも検討している。」とのこと(図表 3.2-4)。

実現するためにはプログラムインタフェースやAPIの整備が必要であり、「CMSは、医療の未来がオープンAPIの開発にかかっていると考えている。」と語っていました。

"Blue Button2.0"



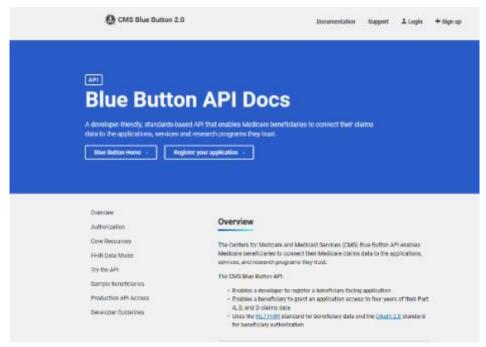
図表 3.2-4 BlueButton

[出典] Session#17

"How CMS is Leveraging Information and Technology in Medicare and Medicaid" Seema Verma, Administrator, Centers for Medicare and Medicaid Services

BlueButton は 5300 万人の Medicare 受給者を対象としたもので、Medicare の PartA,B,D に対応し、4 年間の請求履歴を持っています。開発者向けの API は発表同日(2018 年 3 月 7 日)から公開され。OAuth2.0、HL7 FHIR、HIPPA に準拠し、受給者はいつでも誰が自分のデータにアクセスできるかをコントロールできるとのアナウンスがありました(図表 3.2-5)。

「NIHの研究とも連携できる」という説明の後すぐに、「私が連携したら私の ID が NIH に知られてしまうのか?」という質問があり、「どの情報を伝えるかどうかもあなた自身がコントロールできますよ。」と回答していました。



図表 3.2-5 Blue Button API Docs

「出典] Session#CH28

"Blue button on FHIR"

Mark Schrimshire, Entrepreneur in Residence, US Dept. HHS/CMS Innovation Center

Meaningful Measures Initiative

CMS のブースでは"Patients over paper work"が前面に表示されていましたが(図表 3.2-6)、窓口で聞いても具体的なアクションプランはれからだとのこと。一方でこれまでの政策は粛々と進められています。



図表 3.2-6 CMS のブースの様子

Meaningful Measures Initiative は Meaningful Use の適用範囲と審査基準を示し、患者、患者の家族、医療機関のアウトカム向上をプロモーションしていくものです(図表 3.2-7、3.2-8)。



図表 3.2-7 CMS ブース配布資料 (Meaningful Measures Initiative)



図表 3.2-8 CMS ブース配布資料 (Meaningful Measures Initiative)

新しい Medicare card

Social Security 番号が記載されていない新しい Medicare card が、2018 年 4 月から 2019 年 4 月までの間に郵送されるという宣伝活動が行われていました(図表 3.2-9)。



You're getting a new Medicare card!

Cards will be mailed between April 2018 - April 2019

図表 3.2-9 CMS ブース配布資料 (新しい Medicare card)

3.3 Coordinated and Connected Care

近年の"ヘルスケアエコシステム"は、人の一生の各段階や場面におけるケアを対象とするため、患者や人中心(person-centric)で協調的な(collaborative)アプローチを採用する方向にあります。ケアチームは、施設・組織の正式職員のみならず、それ以外のメンバーや、医療サービス提供者ではない医療制度外の家族、友人、その他のメンバーを含むようになってきています。 ケア対象者のための"共有された意思決定"(shared decision-making)は、ますます情報化し(information-driven)、相互依存しており、調整を確実にすることは難しくなっています。 リーダーシップの役割、技術的スキル、IT 戦略、経営戦略など様々な課題が存在し、戦略的取り組みが必要とされています。

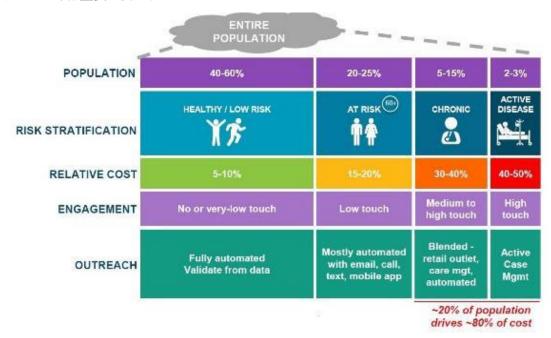
Coordinated and Connected Care (協調・連携ケア) シンポジウムは、下記の 6 セッションで構成されていました。

- The Need for Trended Data
 トレンドデータの必要性
- Creating a Culture of Shared Decision-making 共有された意思決定の文化の形成

- Bridging Gaps: Interfaces and applications for shared decision-making ギャップの補填:共有された意思決定のためのインターフェースとアプリケーション
- Collaborative Platforms for Cooperative Decision-making 協力的意思決定のための協調的プラットフォーム
- New Roles New Skills: Building a Workforce For the New World 新しい役割 新しいスキル: 新しい世界のための人材の育成
- Closing Keynote クロージング

本節ではその中から主なトピックについて紹介します。

現在ヘルスケアを取り巻く環境は変化してきており、例えば医療サービスの量に基づく支払い制度からパフォーマンスに応じた支払いへのモデルの変換や、病気にかかったらそれに応じて治療をするというのではなく予防や予測に基づいた活動へと、ヘルスケアのモデルが変革しつつあります。そのような環境の中で、人のライフスパン全体にわたる Coordinated and Connected Care (協調・連携ケア)を考える際には、価値に基づいたケアが重要になります。そこでは、図表 3.3-1 に示すように、全 population を管理する必要があります。ケア対象者を中心に考えた効果的アプローチには、データに基づいた活動と患者エンゲージメントが重要となります。



図表 3.2-1 Population Health 管理

[出典] Session#CCC1

"The Need for Trended Data"

Judy Murphy, Chief Nursing Officer, IBM

CCC には静的な臨床データのみではなく、様々なソースから統合した臨床データ、動的なトレンドデータが特に重要となります。それらを用いて予測や予防の可能性を含めた意思決定を行い、患者エンゲー

ジメント等各種活動につなげていくことができます。要は患者を知り、効果的な提案やサービスを患者個別化し、患者を Empower するためにはデータがキーとなります(図表 3.3-2)。

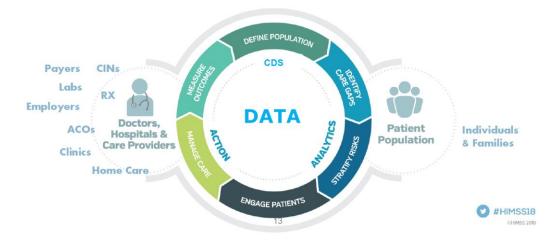
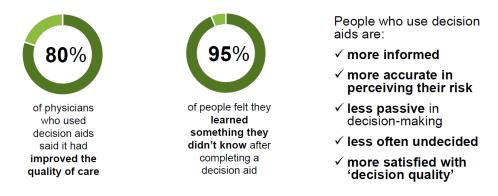


表 3.3-2 Data as the New Currency

[出典] Session#CCC1
"The Need for Trended Data"
Judy Murphy, Chief Nursing Officer, IBM

人のライフスパン全体の健康を対象とする環境の中で、患者中心の長期的な(longitudinal)ケアにシフトしてきています。関係者間で共有された意思決定(SDM: Shared Decision Making)は成果へ繋がります。患者のみならず医療者にとっても、意思決定を支援するプレイヤーやツールは重要になります(図表 3.3-3)。



Shared Decision Making Matters

図表 3.3-3 Shared Decision Making Matters

[出典] Session#CCC1
"The Need for Trended Data"
Judy Murphy, Chief Nursing Officer, IBM

米国 ONC(Office of the National Coordinator for Health IT)では、共有された意思決定は患者中心のケアの重要な要素としています。医療者向けに共有された意思決定を行うにあたってのコツ(図 3.3-4 左側)を示しています。

Shared Decision Making

Tips from ONC

- 1. Invite the patient to participate
- 2. Present options
- 3. Provide information on benefits and risks
- 4. Assist patients in evaluating options based on their goals and concerns
- 5. Facilitate deliberation and decision making
- 6. Assist patient in following through on the decision

"Shared decision making is a key component of patient-centered health care. It is a process in which clinicians and patients work together to make decisions and select tests, treatments and care plans based on clinical evidence that balances risks and expected outcomes with patient preferences and values."

Office of the National Coordinator for Health IT

https://www.healthit.gov/sites/default/files/nlc shared decision making fact sheet.pdf

図表 3.3-4 Shared Decision Making

[出典] Session#CCC4

"Collaborative Platforms for Cooperative Decision-making" Larry Wolf, Chief Transformation Officer, MatrixCare Kirby Cunningham, Senior Product Manager, Matrixcare

共有化された意思決定を導入し、成功へ導く8つのステップとして次の図が示されていました。 このステップを実行するには、People、Process、Technology、Engagementの各要素への対応が必要となります(図表 3.3-5)。





図表 3.3-5 Implementing Shared Decision Making with Decision Aids [出典] Session#CCC2

"Creating a Culture of Shared Decision-making"
William Russell, Geriatrician, Medical Specialists of The Palm Beaches, Inc.
Kathryn Martinez, Assistant Professor, Cleveland Clinic

データや情報を共有することがこのステップで必要となります。既存のデータでは患者の考える優先順位などのデータは収集されていないケースがありますが、そのような場面では患者エンゲージメントがデータ共有の成功要因となります。次の図のような患者支援ツールによって情報提供やデータ収集を行い、図表3.3-6、3.3-7 に示すように患者の反応をデータとして取り込んで分析やその後の共有に活用します。



図表 3.3-6 Engaging Patient Decision Aids

[出典] Session#CCC3

"Bridging Gaps: Shared Decision-making"

John F Derr, Chief Consumer Affairs Officer, CareCommunity

Leslie Kelly Hall, Sr. Vice President of Policy, Healthwise

Terry O'Malley, Internist/Geriatrician, Massachusetts General Hospital



図表 3.3-7 Patient Response

[出典] Session#CCC3

"Bridging Gaps: Shared Decision-making"

John F Derr, Chief Consumer Affairs Officer, CareCommunity

Leslie Kelly Hall, Sr. Vice President of Policy, Healthwise

Terry O'Malley, Internist/Geriatrician, Massachusetts General Hospital

また、患者のケアプランなど情報を共有・交換するためのプラットフォームを構築するには、国全体で信頼できる情報交換基盤が必要です。ONCでは、TEFCA(Trusted Exchange Framework and Common Agreement)を現在提案しています(図表 3.3-8)。Recognized Coordinating Entity(RCE)の管理とガバナンスの元で、複数の Qualified Health Information Network(QHIN)が存在し、それらは相互に直接つながり国全体の情報の相互運用性に貢献する、という構想となります。



Trusted Exchange Framework and Common Agreement

- Governance
- · Network of Networks

Part A—Principles for Trusted Exchange
Part B—Minimum Required Terms and Conditions
for Trusted Exchange

https://www.healthit.gov/sites/default/files/draft-guide.pdf

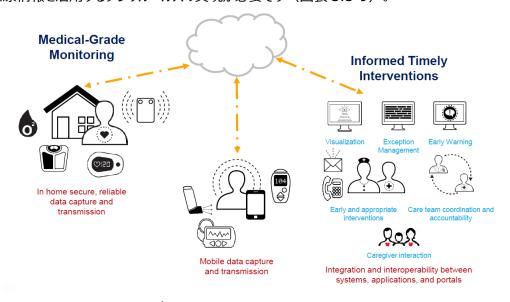


図表 3.3-8 ONC TEFCA Proposal

[出典] Session#CCC4

"Collaborative Platforms for Cooperative Decision-making" Larry Wolf, Chief Transformation Officer, MatrixCare Kirby Cunningham, Senior Product Manager, Matrixcare

CCC のためには、データを収集し、送信し、統合し、分析し、患者や医療者への情報提供、介入等の 医療情報を活用するデジタルヘルスの実現が必要です(図表 3.3-9)。



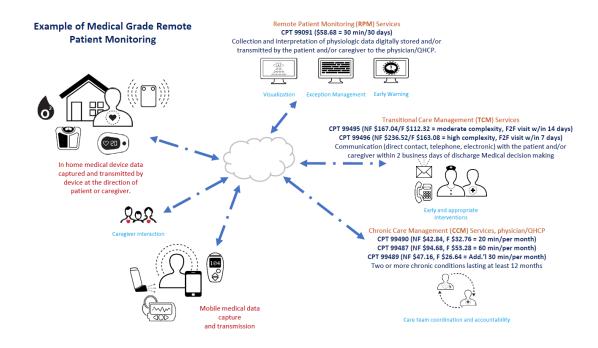
図表 3.3-9 Connected care / Digital health

[出典] Session#CCC6

"Closing Keynote - Payment Reform to Support a New Culture"

Robert Jarrin, Senior Director, Wireless Health Public Policy, Qualcomm Incorporated

遠隔医療(メディケアでは Telehealth、メディケイドでは Telemedicine と呼ばれている)は CCCの構成要素の一つです。 デジタルヘルス実現のために、 在宅モニタリングや遠隔サービスも一部 CPT コードへの反映など支払い制度の変革が進んできており、 CCC 実現のための環境が徐々に整ってきています(図表 3.3-10)。



図表 3.3-10 Example of Medical Grade Remote Patient Monitoring [出典] Session#CCC6

"Closing Keynote - Payment Reform to Support a New Culture"
Robert Jarrin, Senior Director, Wireless Health Public Policy, Qualcomm Incorporated

3.4 Population Health Management

PHM シンポジウムは ACO(Accountable Care Organization)の過去・現在・将来について、6 つのセッションで構成されていました。

ACO の状況

ACO の設立理念は医療の質とコストの最適化を図るというものであり、メディケアの質とコストのベンチマークをクリアした ACO には国からボーナスが与えられています。2011年に61団体(CMSプログラムに参加していない ACO を含む)であった ACO は2017年時点で923団体、対象者も3240万人と拡大を続けています(図表3.4-1)。



図表 3.4-1 ACO Growth

[出典] Session#PH1

"At the Crossroads of Volume and Value – You are Here" David Muhlestein, Chief Research Officer, Leavitt Partners しかしすべての ACO が成功している訳ではなく、年間約 50 団体は脱落しています(図表 3.4-2)。

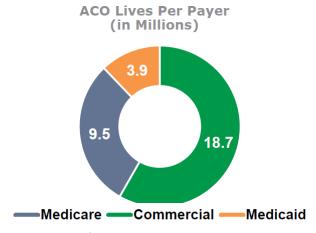


図表 3.4-2 ACO Starts and Dropouts Over Time

[出典] Session#PH1

"At the Crossroads of Volume and Value – You are Here" David Muhlestein, Chief Research Officer, Leavitt Partners

保険毎の対象者は民間保険が 18.7 百万人、Medicare が 9.5 百万人、Medicaid が 3.9 百万人となっています(図表 3.4-3)。



図表 3.4-3 ACO Lives Per Payer

[出典] Session#PH1

"At the Crossroads of Volume and Value – You are Here" David Muhlestein, Chief Research Officer, Leavitt Partners

質とコスト削減のマッピングは下図 3.4-4 のようになっており p36 コストの指標(縦軸)はコスト削減できた ACO がやや多いという状況ですが、質の指標(横軸)は高いほうに寄っており質の向上は達成できているようでした。

Quality and Savings

2016 ACO Quality and Cost Scores



図表 3.4-4 Quality and Savings

[出典] Session#PH1

"At the Crossroads of Volume and Value – You are Here" David Muhlestein, Chief Research Officer, Leavitt Partners

2017 年 10 月に発表された 2016 年の実績報告によると、「923 機関中 432 機関が参加している 最もメジャーなメディケア・セービングプログラム(MSSP)について、総額 6 億 5,200 万ドルのコスト削減を 達成した。432 機関中 31%に相当する 134 機関が、コスト削減に成功し、7 億 100 万ドルのボーナスが与えられた。」とのことでした。地域差や規模の差もあるようで、地域的には中西部、南部、規模的には 2 万人以下の小規模の ACO がコスト節約に成功しているとの分析結果が報告されています。

ACO が提供しているサービスは多い順から、プライマリケア(94%)、検査(79%)、専門ケア(77%)、 入院患者対応(75%)、救急医療(66%)、問題行動対応(63%)、在宅医療(54%)、調剤(50%)、 長期ケア (介護 42%)、歯科(8%)となっています。

IT 活用については、患者ポータル、電子処方、地域住民分析、患者への自動リマイダ、患者・病院間の e-mail、意志決定支援ツールなどが多い状況です。

ACO 側が特に注力している領域としては、再入院/転院の防止・ケア改善、慢性疾患管理、救急外来・入院、急性期後のトータルケアが多く、ACO が抱える課題としては、出来高払いから価値ベースの医療にシフトしていくための関係者の意識がついていっていないことや既存の仕組みが出来高払いベースになっていることが大きいとのことでした。課題として以下のような指摘がありました。

- ・価値ベースの医療によるビジネスモデルの確立
- ・価値ベースにシフトすることに対して意欲的な医療機関
- ・患者をトータルでケアできる臨床的な統合の仕組み
- ・収支・会計などお金の動きについてのトラッキング

初期のACOは指導者達の強引ともいえるリーダシップによって実験的な要素を持って拡大してきたが、 今後は成功している ACO がお手本となり、"価値ベースの医療"は避けようがないトレンドだという意識の 元、競争原理によって拡大いていくだろうとの予測でした。「"価値ベースの医療"への意識改革は辛抱強 く続けなければならない。来年ではなく 10 年後を視野におこう!」と発表は締め括られました。

ACO の成功事例

(1)医師のケアに注力して成功している事例

質とコストのバランスがとれた医療サービスを提供するためには、その提供者の中心である医師をケアすることが大切であるという考え方に基づくものです。

Adventist Health System

9 州に 45 病院、15 看護施設、22 在宅医療機関・ホスピスにより年 500 万人以上の患者に対応しています。フロリダ州では ACO+3CNI、カンサス州では CIN と 3 医療機関、ノースカロライナ州では ACOと医療機関のネットワークを運営しています。

3つの戦略として下記を個人(患者)と雇用者(医療従事者)に提供しています。

- (1)Population Health サービス機関(Population Health Services Organization)
- (2)医療機関が提供するヘルス計画
- (3) 臨床的に統合されたネットワーク (CIN)

特に医師に対しては燃え尽き症候群が課題であるとし(図表 3.4-5)、地域医療向け、専門医向け、救急医向けのアドバイザーやネットワークを整備して医師をケアするプログラムを提供しています(図表 3.4-6)。

Physician Burnout

- · Causes of Burnout
 - Loss of Control Over Work
 - Increased Performance Measurement
 - Inefficiencies in Practice Environment
- Signs of Burnout
 - Reduce Time Devoted to Clinical Work
 - Unnecessary Testing & Referrals
 - Poor Quality/Medication Errors
 - Leave Profession/Retire Early

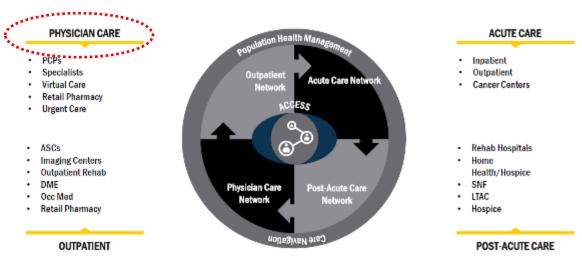


図表 3.4-5 Physician Burnout

[出典] Session#PH2

"One Medicine: Incorporating Population Health Principles and Best Practices into Clinical Workflow"

Jayne Bassler, Senior Vice President of Population Health Management, Adventist Health System



図表 3.4-6 Physician Care

[出典] Session#PH2

"One Medicine: Incorporating Population Health Principles and Best Practices into Clinical Workflow"

Jayne Bassler, Senior Vice President of Population Health Management, Adventist Health System

(2)データを活用して改善している事例

Henry Ford Health System

8 病院、200 ケアサイト、在宅ケア、薬局を擁しミシガン州で 100 万人弱の対象者を持つ組織です。 価値ベースの医療を提供する組織への転換点として MSSP よりも条件が厳しい Next Generation プログラムに挑戦したとのことでした。

EPIC 社の電子カルテと個人向け情報提供の Mychart、分析プラットフォーム HELIOS を活用しており、キーとなるのは施設内の電子カルテにある患者情報と、施設外からの医事請求情報とのことでした。 施設内の電子カルテは EPIC 社の電子カルテデータを活用し、外部からはブルークロス(BCBN)、ヘルスアライアンスプラン(HAP)や CMS などの保険者から資格情報、医事請求情報を取り込み分析・活用しています(図表 3.4-7)。

Blend External & Internal Information



図表 3.4-7 内外の情報の統合

[出典] Session#PH3

"Making the Numbers Work"

Bruce K Muma, Chief Executive Officer, Henry Ford Physician Network Matt Hussman, Director, Analytics, Henry Ford Physician Network

以下の「無駄が多い領域」の設定と「選択肢」の絞り込みを行っているとのことでした。

・ハイリスク患者: ケアする場所(病院か在宅か)の絞り込み

・急性期患者: 意志決定のバリエーション(入院か別病院への紹介か)の絞り込み

・急性期後の患者:再入院かアウトソーシングサービスの適用かの絞り込み

これにり、一人一月あたり 16.48 ドル、トータルで年約 400 万ドルの節約効果を出し、この数値は CMS ベンチマークを 2%上回る成果とのことで、成功要因として以下のように自己分析しているとのことでした。

- ・ビジョンや期待を過度に伝えすぎないこと
- ・臨床のリーダ達をプロセス作りのリーダとしてより良いケアモデルを創るようにインスパイアすること
- ・多職種連携チームが継続的なケアで価値を出すためにとても重要であった
- ・信頼できる測定基準を作りできるだけ多くの状況をリアルタイムにダッシュボードで参照可能とすること
- ・財務チームには価値ベースのケアプログラムの影響を理解させた上で測定させること

また、教訓として以下が挙げられていました。

- ・完璧なデータは必要ではない。今入手できるデータだけでもまだまだ無駄はたくさん見つかる。
- ・医事請求と電子カルテ情報の集約・分析は困難。医療者との信頼を構築するのはさらに困難。
- ・大きな無駄にフォーカスして医療者たちが"正しいこと"をするようにサポートすることが重要で、 対抗的にコントロールしてはいけない。

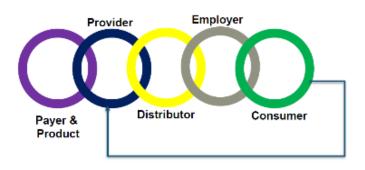
(3)バリューチェーンを見直して成功している事例

Adovocate Health Care

64億ドルの収入を得ており、160万人患者を11病院、在宅医療施設、ホスピスなどで対応している とのことでした。メディケア・セービング・プログラム(MSSP)では、質でもトップレベルを維持しつつ、コスト セービングでも 2015 年は 3 位、2016 年は 2 位という ACO の優等生の状況で、バリューチェーンを下 図 3.4-8 のように定義し、チェーンの構成それぞれに対する分析、対策を検討しているという発表でした。

図表 3.4-8 Health Care Value Chain

Health Care Value Chain



[出典] Session#PH6 "Beyond the Horizon: What's Next?" Don Calcagno, President, Advocate Physician Partners

注目したいのは、患者ではなく消費者としている点です。消費者としたことで、患者がいくらくらい自腹を 切って医療費を払うことができるかという視点が追加されます。

また医療機関と消費者との関係において達成すべきこととして、患者の体験向上、医療効果 (outcome) の向上、トータルコストの低減の3つだけではなく、医師の体験向上も含めた4点とする べきであるとしている点も注目に値します。これは「事例(1)医師のケアに注力して成功している事例」とも 通じる内容となります(図表 3.4-9)。



[出典] Session#PH6

"Beyond the Horizon: What's Next?"

Don Calcagno, President, Advocate Physician Partners

Adovocate Health Care は、バリューチェーンの定義・チェーン構成の課題分析・財務リスク・支出分析を行った結果に基づき、慢性患者の入院前後のニーズを満たすための「業際デリバリチーム」と継続的に連携したケア管理を行うための「統合ケア管理」というトライアルを進めています。

「業際デリバリチーム」という多面的なチーム構成で、以下の効果を創出したのだそうです。

- ・慢性疾患クリニックを有効活用するなどリソースの使い方の強化
- ・外来が困難な患者に対するより効果的なケアプランによるサポート
- ・グループでの問題解決
- ・効果的な財政リスク管理に対する文化の創出

また、「統合ケア管理」ということで、m救急医療の分野でパイロット的に開始する予定であり、現在は設計フェーズにあるとのことでした。

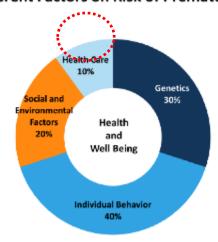
ACO の今後

患者中心に、患者個人の状況に応じたサービスを適正なコストで提供していくという方向になっていくで あろうとのことでした。

(1)患者中心へ

早死にする社会的要因の中で医療が関与するのは 10%に過ぎない状況が示されました(図表3.4-10)。

Impact of Different Factors on Risk of Premature Death



SOURCE: Schroeder, SA. (2007). We Can Do Better — Improving the Health of the American People. NEW. 357:1221-8.

KAISER FAMILY

図表 3.4-10 Impact Different Factors on Risk Premature Death

[出典] Session#PH6

"Beyond the Horizon: What's Next?"

Don Calcagno, President, Advocate Physician Partners

この下で、個人の行動や社会的環境要因が 60%だからゴールはケアの統合ビューを使って患者中心のケアを行うことである、とされました(図表 3.4-11)。

The goal

Integrated View of Care Patient Centered Care Provider Enabling Home care Physician's office

図表 3.4-11 The goal

[出典] Session#PH6

"Beyond the Horizon: What's Next?"

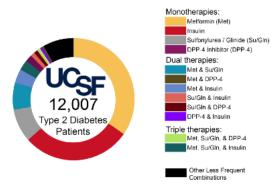
Don Calcagno, President, Advocate Physician Partners

(2)個人に焦点を当てた地域住民の健康医療管理へ

(Precision Population Health Management)

Ⅱ 型糖尿病患者の治療を例に、カリフォルニア大学サンフランシスコ校(UCSF)12,004 人の患者 一次治療だけを見ると 12-13 種類の区分で済むとのことでした(図表 3.4-12)。

Medication Strategies for Treating Diabetes Patients



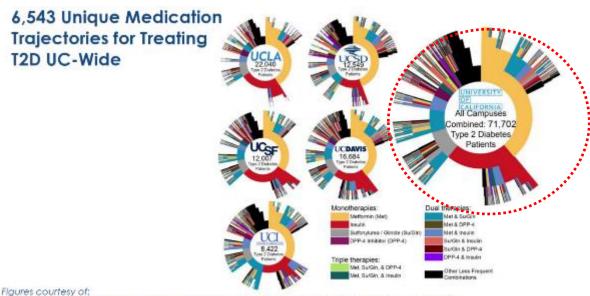
図表 3.4-12 Ⅱ 型糖尿病患者の患者一次治療種別

「出典] Session#PH5

"Improving Population Health One Person at a Time"

India Hook-Barnard, Director, Research Strategy; Associate Director, Precision Medicine, UC, San Francisco

ここまでがこれまでの population health management の考え方となりますが、2 次治療、3 次治療までの組み合わせで見ていくと 1640 通りとなり、更にカリフォルニア大学全校を対象に増やすと 71,702 人の患者に対して 6,543 通りもの組み合わせとなるとの分析でした(図表 3.4-13)。



Atul Butte, MD, PhD, Professor, Director of UCSF's Institute for Computational Health Sciences (ICHS)

図表 3.4-13 全学対象での治療バリエーション

[出典] Session#PH5

"Improving Population Health One Person at a Time"

India Hook-Barnard, Director, Research Strategy; Associate Director, Precision Medicine, UC, San Francisco

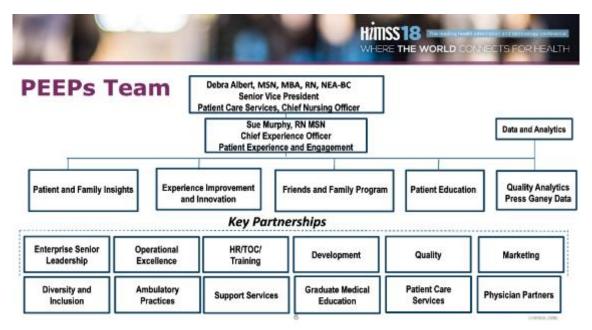
このことからも明らかなように治療を受ける個人に視点を当てると population health も精密化が必要であるとのことでした。

3.5 共創アプローチによる業務プロセスのリフォーメーション

今年の HIMSS 会場では、"Value Based Care"、"Co-design"、"human-centered design"、"Patient Experience and Engagement"、"Human/Patient Centric"、"Patient Journey"などといったキーワードがよく聞こえてきました。これは、従来の効率や質等の最大化を起点とする業務プロセスの最適化をベースとし、加えていわゆる共創のアプローチにより患者視点での拡充を図る考え方となります。その下で特徴的であった3つの事例について紹介します。

最初の事例は、Uchicago Medicine における、CXO(Chief experience Officer)の配置による医療機関による組織的な業務プロセス改革の推進です。CXO の最大の役割は「患者および家族に最高の医療サービスを提供するにあたり、持続可能で最適なケアを提供する業務システム改革を創出すること」とされ、主に以下の活動を推進するものとされています。

- ・個々の患者のアウトカムの着実な達成の為の病院全体的な治療戦略のリード
- ・統一的な質や安全性の担保の為の組織文化の醸成
- ・患者の享受する治療経験に関するガイドおよび整合性の担保
- ・各種技術の活用と人間関係の維持のバランシング
- ・コミュニケーション、患者エンゲージメント、スタッフ業務の最大化のためのイノベーションの導入 この推進のため、院内の体制として以下のような編成が組まれています(図表 3.5-1)。



図表 3.5-1 CXO チーム

[出典] Session#183

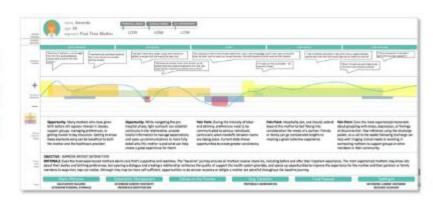
"Chief Experience Officer: New Leader Driving Innovation to Transform Healthcare" Sue Murphy, RN, BSN, MS, Chief Experience Officer, UChicago Medicine

この組織の下、患者へのインタビューや看護師等の業務効率の測定による評価を行いつつ業務プロセス のリフォーメーションを実施しているとの発表でした。

次の事例は、Marian Regional Medical Centerのもので、Dignity Health 社とDocent Health 社によるコンサルテーションによる業務プロセスのリフォーメーション事例です。同病院では、①セグメント化された患者の来院から退院までを通じた"Patient Journey"の可視化(図表 3.5-2)に基づく患者の治療経験デザインの再構成を最初に実施し、次にこの実行にあたり②テクノロジーの活用による更なる個別化の深耕と患者満足度等による効果測定、そして③CRM 等の機能強化による ICT 充足のステップ

でリフォーメーションを実施したとのことでした。

End-to-End Journey Mapping



図表 3.5-2 Patient Journey の可視化

[出典] Session#12

"Scaling a Customized Patient Experience"

Candice Monge, CNEO Dignity Health MRMC / Royal Tuthill, Co-Founder Docent Health

この成果として、図表 3.5-3 に示す様な患者理解の浸透を含めた成果が得られ始めたとの発表でした。



図表 3.5-3 効果測定

[出典] Session#12

"Scaling a Customized Patient Experience"

Candice Monge, CNEO Dignity Health MRMC / Royal Tuthill, Co-Founder Docent Health

最後の事例は、Cleveland Clinic のものです。同病院では遠隔医療の提供といった ICT を活用した

先端的なアプローチと併用して、"High-tech Design is Not Always the Solution"として、「Relationship-Centered Exam Room」の環境整備を進めているとのことでした。この検査室では、患者、そして医師や看護師等の医療者のワークフローやコミュニケーション、視線移動等を分析することで、什器を含めた最適な形状や配置の最適化を共創のアプローチで推進しており(図表 3.5-4)、この最適化では美品や音楽等の芸術的な側面からの効果も視野に入れ検討を進めているとのことでしたが、併せて各種医療機器を具備した患者用の椅子を含め、EMR や CDSS 等のシステムと連携することで ICT活用による効率等の向上に積極的に取り組んでいるとのことでした。









図表 3.5-4 検査室の最適環境の検討例

[出典] Session#48

"Improving Healthcare through Co-Deisign"
Julie Rish, Ph.D. & Susannah Rose, Ph.D., Cliveland Clinic

これら事例の様な、業務プロセスの全体最適性の向上に向けた活動は、欧米では従来より Lean Consulting 等進められて来た背景があるが、他業種と同じく、今般の共創、特にデザイン思考による更なる現場改革が起こりつつある様に見受けられました。

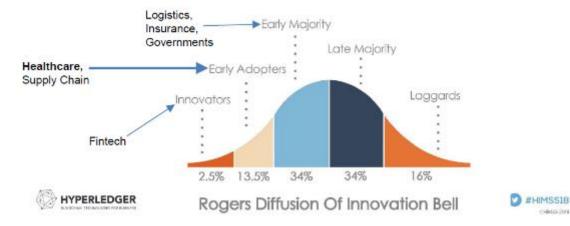
3.6 Blockchain

ブロックチェーンのセッション全般に言えることとして、聴講者のレベルも様々なためか、そもそもブロックチェーンとは何かなど技術的な基礎の話から説明するものが多くありました。本報告書では基礎技術については省略します。

ブロックチェーンの産業への適用状況

Linux Foundation Exective Director の Brian Behlendorf 氏はイノベーションのベル曲線上に、ヘルスケアはサプライチェーンとともにブロックチェーンのアーリーアダプタとして位置付けていました。他にはイノベータとして Fintech、アーリーマジョリティは物流、保険、行政という見解でした(図表 3.6-1)。

Blockchain Industries Curve



図表 3.6-1 Blockchain のベル曲線

「出典] Session#145

"Blockchain 101 for Healthcare"

Brian Behlendorf, Exective Director of Hyperledger at The Linux Foundation Corey Todaro, Chief Operating Officer at Hashed Health

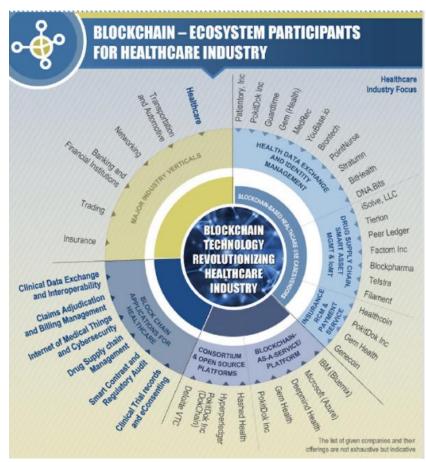
Insilico Medicine 社の CEO である Alex Zhavoronkov 氏は、ヘルスケア業界はブロックチェーン を活用する業界のひとつであり、その中では

- ・オープンプラットフォームやコンソーシアムの企業群
- ・ブロックチェーンをサービスやプラットフォームとして提供する企業
- ・保険・支払いサービス
- ・医薬品のサプライチェーン
- ・医療データ交換や ID 管理

など多くの企業が活動していること、さらにブロックチェーンを使ったアプリとしては

- ・診療データ交換や相互運用性に関するもの
- ・医事請求の公正や医事会計の管理に関するもの
- ・医療関係の IoT やサイバーセキュリティに関するもの
- ・医薬品のサプライチェーン管理に関するもの
- ・規制に関する監査証跡
- ・臨床試験記録や eConsent

などがあることを述べていました(図表 3.6-2)。



図表 3.6-2 Blockchain – Ecosystem Participants for Healthcare industry [出典] Session#174

"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA

Steve Goeringer, Principal Security Architect, CableLabs Alex Zhavoronkov, Phd, CEO, Insillico Medicine

ヘルスケアでブロックチェーンが期待されている理由

IBM 社のヘルスケア部門のブロックチェーンの開発部長である Francisco Cubera 氏は、「ヘルスケア におけるブロックチェーンは複数の組織にまたがる信頼性のある、安全なビジネスネットワークを提供する ことができる」として具体的には下図表 3.6-3 に掲載の 9 点のメリットがあるのでヘルスケアへの適用が注目されていると述べていました。

① データの起源の保証	原本にさかのぼって、全ての同意、データアクセスおよび更新を確認する
	ことができる。
② 説明責任	ブロックチェーンは改ざんできないので各ブロックの説明責任は当事者に
	責任を負わすことができる。
③ セキュリティ	セキュリティ自体がブロックチェーンの設計の核であり、これは従来のシステ
	ムとは異っている。
④ プライバシー	閲覧することを認められた団体・人だけが閲覧することができる。
⑤ 詐欺や複雑性の低減	虚偽申請、改変、悪用などを低減することができる。
⑥ 時間の節約	商取引が自動化され、ほぼリアルタイムに実施される。
⑦ 省コスト	ビジネスネットワークは中間業者を取り除き規模を拡大が容易である。
⑧ リスク低減	商取引が検証可能、監査可能となる。
9 信頼性向上	共有プロセスと記録管理を通して信頼性を向上できる。

図表 3.6-3 ヘルスケアで Blockchain を適用する 9 つのメリット

[出典] Session#AC18-IEEE

Emerging Healthcare Technologies Forum

"Practical Uses for Blockchain in Healthcare Today"

Francisco Cubera, Director for Development of Blockchain in Healthcare, IBM

ヘルスケア分野でのユースケース

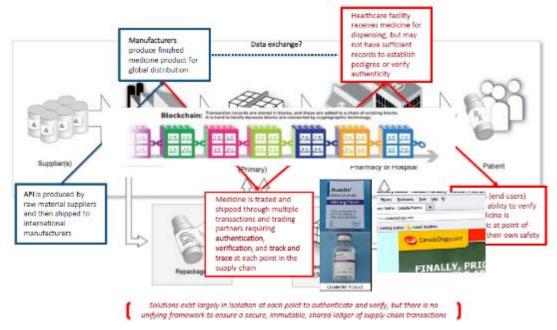
(1)Health Linkages 社の取り組み

Health Linkages 社の CEO である Robert Barkovich 氏の発表は以下の通りでした。

①薬のサプライチェーン

1) プライベートなブロックチェーン

製造者・販売者間に閉じたネットワーク。消費者にも規制当局にも公開しない(図表 3.6-4)。



図表 3.6-4 製造者・販売者間に閉じたネットワーク

[出典] Session#126

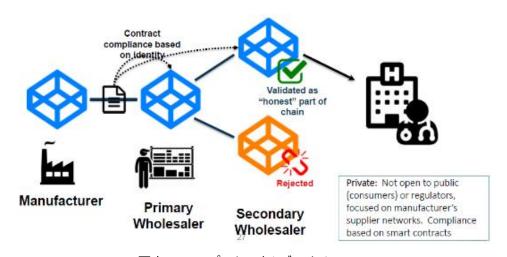
"Blockchain 4 Healthcare :Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

これはプライベートなブロックチェーンと呼ばれる設計で、現在はこの段階とのことでした(図表 3.6-5)。



図表 3.6-5 プライベートなブロックチェーン

"Blockchain 4 Healthcare :Fit for Purpose?"

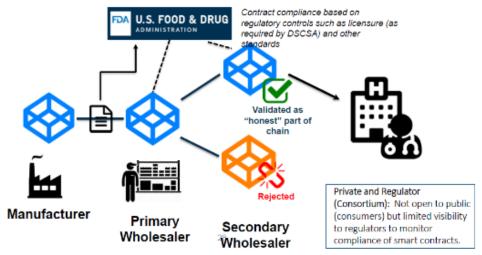
Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

2) プライベート+規制当局 のブロックチェーン

規制当局に一部公開してライセンスや標準規格に準拠しているかどうかをチェックを受ける形態です (図表 3.6-6)。



図表 3.6-6 規制当局に一部公開

[出典] Session#126

"Blockchain 4 Healthcare :Fit for Purpose?"

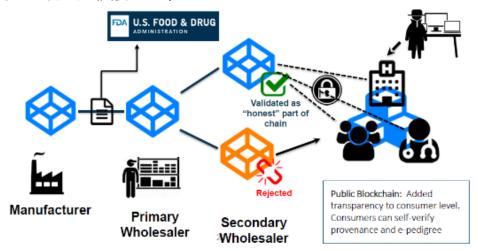
Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

3) パブリックなブロックチェーン

消費者まで透明性を開示します。消費者は自身で出所や電子的由来(e-pedigree)を評価することができるようになります(図表 3.6-7)。



図表 3.6-7 消費者まで透明性を開示

[出典] Session#126

"Blockchain 4 Healthcare: Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

②臨床試験の患者リクルーティング

<課題>

臨床試験の患者リクルートはお金と時間がかかる。

研究データは検証可能であり、追跡研究プロトコルやデータ共有計画が成果を裏付ける

→研究データ検証のために追跡研究やデータ共有計画が必要となるのでお金と時間がかかる。

<なぜブロックチェーンが適するか?>

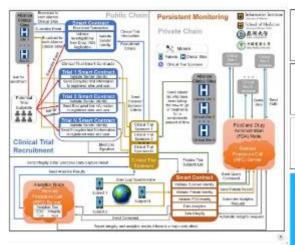
患者マッチング、監視、データのバリデーション患者の参加への動機づけ、e-concent が可能 <設計>

患者を集めるときはパブリック

治験プロトコル適用はプライベート

さらに、メタデータを使った患者データベースの共有が目的に応じた臨床結果を共有するのに役立つと思われる(図表 3.6-8)。





Problem: Clinical trials recruitment is expensive and time consuming. Study data should be verifiable and also follow study protocol and data sharing plan to support outcomes

Why Blockchain?: Can enable patient matching and monitoring (e.g. matching with EHRs), can validate data, can incentivize patient participation, enable e-consent

Design?: Clinical trial BC can adopt hybrid design with public (enrollment) and private (clinical trial protocol) components. Smart contracts can enable trial steps.



Additional meta-data in BC clinical trial attributes could help create shared patient databases for future participation and enable better sharing of trial results with subjects.

II HENDELIE

図 3.6-8 臨床研究への適用

「出典] Session#126

"Blockchain 4 Healthcare: Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

③医療機器の管理

<課題>

ワイヤレス接続された医療機器が意志決定の重要な役割を担ってきており、セキュリティが重大な関心 事。

<なぜブロックチェーンが適するか?>

メンテナンス時にスマートコントラクトを使うことで、医療機器のログの改ざんを検証したり、保険請求をより 有効なものにすることができる。

<設計>

リコール目的のブロックチェーンであれば、パブリックとしてエンドユーザに公開し、規制当局も閲覧可能とする。 コンソーシアムモデル。

さらに、複数の医療機器から集めたメタデータによってデジタルヘルスの個化やよりよいコミュンイティケアを提供できる(図表 3.6-9)。



図 3.6-9 医療機器への適用

"Blockchain 4 Healthcare :Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

④ゲノミクス

<課題>

ゲノミクスと精密医療はシーケンスデータを多量に扱えるようになったところからその活躍の場を大きく拡大してきている。

<なぜブロックチェーンが適するか?>

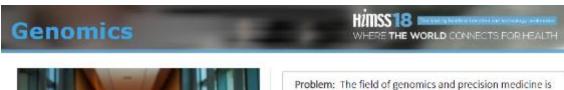
異なるソースからのゲノムデータを集中化する・しないにかかわらず検証することは研究の共有や薬剤開発、ポピュレーションヘルス分析に大いに貢献する。

<設計>

いくつかのゲノム関連企業は遺伝子データの共有を奨励するためにパブリック型の BC としている。

プライバシーとセキュリティが重要項目

さらに、BC の中のゲノムデータは多くの中の 1 つの属性に過ぎない。環境情報やライフスタイル、生物学的データなどが BC のゲノムデータに追加されていくから(図表 3.6-10)。





Q&A: George Church and company on genomic sequencing, blockchain, and better drugs



Problem: The field of genomics and precision medicine is rapidly expanding along with the ability to generate large volumes of sequencing data (including DTC sequencing).

Why Blockchain?: Verification of disparate sources of genomic data w/out centralization that could enable greater sharing for research, drug dev, pop health analysis.

Design?: Several companies in the genomic BC space focus on public models that use tokens to encourage sharing of genomic data. Privacy and security key issues.



Genomic data in the blockchain could be one attribute of many. For example, PMI ("All of Us"), collects environmental, lifestyle, and biologic data that can be added to genomic data in a bc environment

図 3.6-10 ゲノミクスへの適用

[出典] Session#126

"Blockchain 4 Healthcare :Fit for Purpose?"

Maria Palombini, Communities & Initiative Development
Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

⑤医薬品安全監視

<課題>

製品リコール(撤去と収集)は高額で時間もかかる。FDA に準拠した監視や監査証跡に対応するのは 難しい。

<なぜブロックチェーンが適するか?>

戦略的な撤去と変更なしの監査記録を確立することができる。

<設計>

リコール目的のブロックチェーンであれば、パブリックとしてエンドユーザに公開し、規制当局も閲覧可能とする。コンソーシアムモデル。

さらに、サプライチェーンや市販後調査の BC のメタデータは損傷物の原因特定に役立つと思われる (図表 3.6-11)



図 3.6-11 医薬品安全監視への適用

"Blockchain 4 Healthcare: Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

⑥患者支援

<課題>

患者支援プログラムは標準化されておらず、特定の患者には適合させにくい。たとえば、希少疾患患者や扱いに注意しなければならない場合など。

<なぜブロックチェーンが適するか?>

患者の健康に対する財布を加えることで患者が求めるものや権利をより検証できるようになる。

<設計>

患者擁護団体とパートナシップを組んだパブリックモデルで、患者支援プログラムの

トランザクションをスマートコントラクトを使ってでできる限り標準化する

さらに、いくつかの製薬会社は患者の適格性と恩恵が不明確でもソーシャルメディアに誘導しようとして炎上した(図表 3.6-12)。



図 3.6-12 患者支援への適用

"Blockchain 4 Healthcare :Fit for Purpose?" Maria Palombini, Communities & Initiative Development Barkovich, CEO,Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

⑦科学的文書の出版

<課題>

学術的な文書発行は透明性が低く遅くレビュアのインセンティブはとても少ないことがよくある。

<なぜブロックチェーンが適するか?>

より速くより透明性を持ったレビューを行うことができ、変更なしでしかも暗号通貨を使ったよりよいインセンティブを与えることができる。

<設計>

許可ベースのブロックチェーンでパブリックに公開。

マニュフェストがアクセスできスマートコントラクトによるサービスへの支払が行われる(図表 3.6-13)。



図 3.6-13 科学的文書への適用

"Blockchain 4 Healthcare :Fit for Purpose?"

Maria Palombini, Communities & Initiative Development

Barkovich, CEO, Health Linkages

TimMackey ,Associate Professor/Director, UC San Diego

(2)IBM 社の取り組み

IBM 社の Francisco Cubera 氏によると、同社は FDA、CDC 等と実証事業を推進中行っているとのことでした。

- ① FDA-IBM 共同研究「規模可変で非集中化されたデータ共有フレームワークの創出」(図表 3.6-14)
- ・FDA-IBM 共同で 2017 年 1 月アナウンス
- ・生物学の幅広いデータに対して、全ステージで必要とされる安全で効果的で規模可変なヘルスケアデー タの交換
- ・ブロックチェーンの技術は完全性、起源、ガバナンス、透明性を可能にするデータ共有のためのとても安全な分散型フレームワーク
- ・FDAとIBMのジョイントチームは、パブリックヘルスの改善のための発見を導くようなデータ共有のエコシステム、規模拡大可能で非集中化された共有のエコシステムを支援する基盤としてのBC技術をテストして

いる

・FDAとIBMのジョイントチームはある特定のFDAデータ交換の要求を解決するプロトタイプを2017年中に構築した

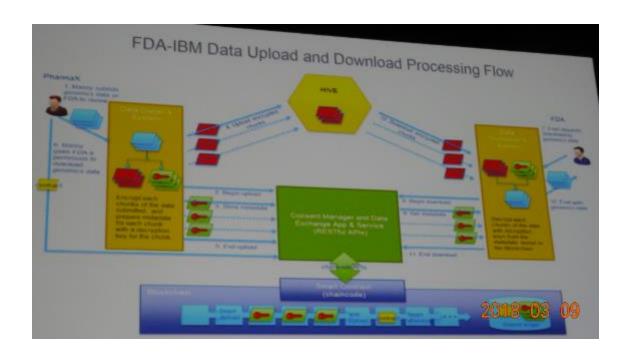


図 3.6-14 FDA-IBM による実証事業

[出典] Session#AC18-IEEE

Emerging Healthcare Technologies Forum

"Practical Uses for Blockchain in Healthcare Today"

Francisco Cubera, Director for Development of Blockchain in Healthcare, IBM

② CDC-IBM 共同研究「EHR 参照データ 保管と同意の連鎖」(図表 3.6-15)

2017年11月からFDAとの共同研究の延長線上としてCDC(米国疾病予防センター: Centers for Disease Control and Prevention)との実証を行っているとのことでした。

<検証対象>

- ・EHR の管理の連鎖を追跡する
- ライフサイクルにわたって、特定の政府の規制に準拠したうえで、どのように蓄積され、アクセスされ移動するかを追跡する
- ・同意と EHR の共有を管理する
- <検証方法>

- ・どの参加者も BC 上の EHR データのアクセスと蓄積をキャプチャーすることに同意していることが前提。
- ・EHR データの一元的なビューアを創る
- ・同意モデルを含む。その同意モデルは、オーナーが素早く簡単に他者のデータにアクセスするための本人同意を提供できるものであり、論争を避けるために同意を記録できるようにしたものである

<利点>

- 1.同意管理とデータ共有がより簡単になる
- 2.より多くのデータをより頻繁に利用できる
- 3.データのガバナンスの向上
- 4.リスクの軽減
- 5.医療の向上
- 6.地域住民の健康(public health)の向上



図 3.6-15 CDC-IBM による実証事業

[出典] Session#AC18-IEEE

Emerging Healthcare Technologies Forum

"Practical Uses for Blockchain in Healthcare Today"

Francisco Cubera, Director for Development of Blockchain in Healthcare, IBM

③ 括支払ソリューション (図表 3,6-16、3,6-17)

関節移植の包括ケア を例に手術前・入院・退院後 それぞれでどのような行為がされるかという図ととも に何がどのように改善されるかを説明していました。

	課題	ブロックチェーン活用による改善内容
1	包括支払いに関する手作業での請求の照合	スマートコントラクトは契約参加者間の請求を 自動で照合するプラットフォームを提供する
2	請求照合に 30 日間かかり、その間状況を見ることができない。	リアルタイムに請求照合がででき、包括の実績 を見ることができる
3	申請に関する断片化されたデータ	共有化された信頼できるチェインに登録された 請求情報
4	支払い決定のための判断の起点の欠如	起点と証跡の変更できない記録

図表 3.6-16: 関節移植の包括ケアに対するブルックチェーンの効果

[出典] Session#AC18-IEEE

Emerging Healthcare Technologies Forum

"Practical Uses for Blockchain in Healthcare Today"

Francisco Cubera, Director for Development of Blockchain in Healthcare, IBM



図表 3.6-17: 関節移植の包括ケアに対するブルックチェーンの効果

[出典] Session#AC18-IEEE

Emerging Healthcare Technologies Forum

"Practical Uses for Blockchain in Healthcare Today"

Francisco Cubera, Director for Development of Blockchain in Healthcare, IBM

④ SAP-IBM「製薬コールドチェーンの追跡」(図表 3.6-18)

SAPと連携して、医薬品の温度管理、物流管理の検証を行っているとのことでした。



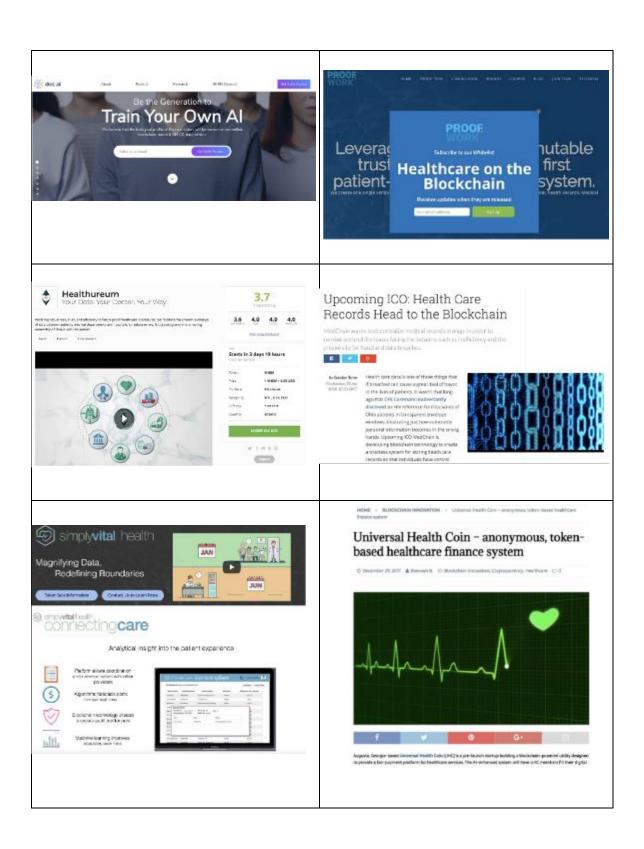
図表 3.6-18 SAP-IBM による実証事業

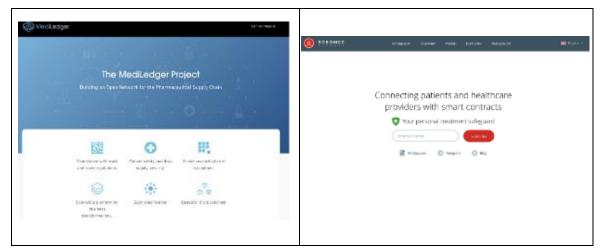
[出典] Session#174

"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA Steve Goeringer, Principal Security Architect, CableLabs Alex Zhavoronkov, Phd, CEO, Insillico Medicine

(3)ベンチャー各社の動き

- ICO (注) を活用したベンチャーがブロックチェーンを活用した様々なトライアルを行っている (図表 3.6-19)。
 - (注) ICO; Initial Coin Offering 仮想通貨で事業を立ち上げるための資金調達を行う仕組み

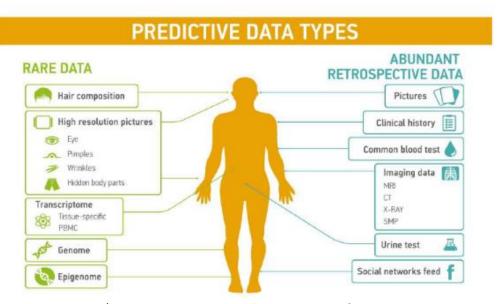




図表 3.6-19 ベンチャーによる様々なトライアル

"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA Steve Goeringer, Principal Security Architect, CableLabs
Alex Zhavoronkov, Phd, CEO, Insillico Medicine

INSILICO MEDICINE 社は、これまで蓄積されてきた診療データ(診療記録、血液検査、画像データ、尿検査 SNS データ)と髪の組成 高解像度の顔の写真、ゲノム、エピゲノムなどの新規データを使って、どんなことをすればより若くなるのか?老いるのか?(若く見えるのか?老いて見えるのか?)という加齢状況をトラッキングするサービスを紹介していました(図表 3.6-20、3.6-21、3.6-22)。



図表 3.6-20 INSILICO 社が予見に使用するデータの種類

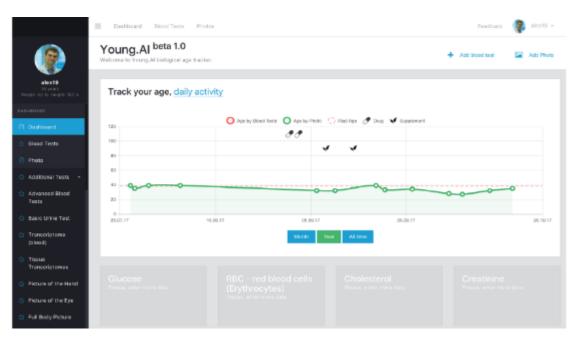
"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA Steve Goeringer, Principal Security Architect, CableLabs Alex Zhavoronkov, Phd, CEO, Insillico Medicine



図表 3.6-21 INSILICO 社の加齢トラッキングサービスのイメージ

[出典] Session#174

"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA Steve Goeringer, Principal Security Architect, CableLabs
Alex Zhavoronkov, Phd, CEO, Insillico Medicine



図表 3.6-22 INSILICO 社の加齢トラッキングサービスの画面

"The convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain" Maria Palombini, Diector, Initiative & Community Development, IEEE-SA Steve Goeringer, Principal Security Architect, CableLabs Alex Zhavoronkov, Phd, CEO, Insillico Medicine

今後の展望

Health Linkages 社の CEO である Robert Barkovich 氏によるとブロックチェーンは今後、IoT 機器、検査システムや EHR との統合、撮影装置やモバイル機器、クラウドデータベースとの統合など「統合化」に向かうであろうこと、台帳を「共有」する際のセキュリティやデータ共有と分析のために既存システム(レガシーシステム)との相互運用性が必要であるとのことでした。また、グローバルの視点では、国際的なデータ交換を促進するようにブロックチェーンの標準と各国の規制との調和が必要であり、DSCCSA やHIPPA、GDPR などの規制がブロックチェーンを奨励する方向に進むのか、妨害する方向に向かうのか、動向を見定めていく必要があると述べていました。

3.7 Cyber Security

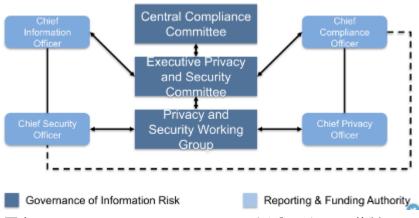
サイバーセキュリティは、初日には一日がかりの有料セッションが開催され、2 日目以降の教育セッションでは演題が全体の約 1/10 を占めるなど、注目テーマのひとつとして盛り上がりを見せていました。

初日の有料セッションには、医療関係者やコンサル、ベンダなど、4~500名が参加しており、その関心の高さが伺えました。セッションは8:15から16:15まで、一日を通して行われました。6つの演題がそれぞれのテーマで完結した内容でありながら、全体でもひとつのストーリーになる構成になっていました。具体的には、近年医療機関での設置が増えているCISO(Chief Information Security Officer)やCPSO(Chief Privacy and Security Officer)などを対象として、医療機関でのサイバーセキュリティ体制構築や対策実施を促進する(危機感を煽るといってもよい)構成および内容でした。

1) How to be an effective cybersecurity leader in healthcare 理想的なサイバーセキュリティ体制は、コンプライアンス、プライバシーとセキュリティ、実活動をそれぞれ 管理する3つの組織と、情報、コンプライアンス、セキュリティ、プライバシーをそれぞれ管理する4人の リーダという構成となっていました。そしてリーダには、技術、コミュニケーション、プレゼンテーション、コラ

ボレーション、リーダシップ、財務など多岐に渡る能力が求められるとのことでした。米国ソルトレイクにある Intermountain Healthcare のサイバーセキュリティ体制が紹介されました(図表 3.7-1)。

Intermountain Cybersecurity Governance



図表 3.7-1 Intermountain Healthcare のサイバーセキュリティ体制

[出展] Session#CYB1

"How to be an Effective Cybersecurity Leader in Healthcare"

Karl West, CISO & AVP, Information Systems, Intermountain Healthcare, Inc

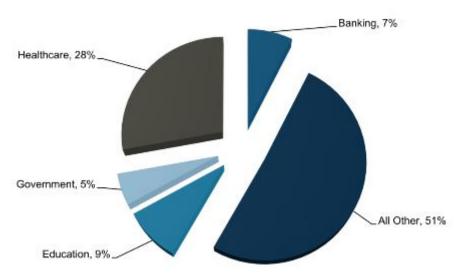
Erik Decker, Chief Security and Privacy Officer, University of Chicago Medicine

本セッションのプレゼンターを務めた同機関の CISO である Karl J.West 氏は、昨年シンガポールで開催された HIMSS AsiaPac17で、米国 HHS(保健福祉省)が保健医療分野の組織横断的な取り組みとして立ち上げた Health Care Industry Cybersecurity Task Force の Chairman である Theresa Meadow 氏が最も信頼する人物の一人として紹介されており、米国のサイバーセキュリティでは重要なポジションにいる人物です。

2) Getting ready for the next international cyber-attack

Critical Infrastructure Sectors の中で、2017 年に最も侵害されたのはヘルスケアでした。計 374 件の侵害が報告され、510 万件を超える患者データが影響を受けたとのことでした。これは全セクタの全侵害のうち 28%を占める規模となっています(図表 3.7-2)。

2017 Breaches by Industry



図表 3.7-2 2017 Breaches by Industry

[出典] Session#CYB2

"Getting Ready for the Next International Cyber-attack" Kristopher Kusche, VP & CISO, Albany Medical Center

3) The economic aspects of cybersecurity

患者のデータが侵害されたときにかかるコストは 1 記録あたり平均 380 ドルと、Critical Infrastructure Sectors の中でヘルスケアが最も高く、他と比べると約 2.5 倍になります。さらに米国には HIPPA 法があり、違反した場合は 1 記録あたり 100~50,000 ドルおよび 1 事象あたり年間 150 万ドルのペナルティが課せられます(図表 3.7-3)。

HIPAA Violation Penalty Tiers



Source: HIMSS18 セッション CYB3 資料

図表 3.7-3 HIPPA 違反時のペナルティ

[出典] Session#CYB3

"The Economic Aspects of Cybersecurity"

Jigar Kadakia, Chief Information Security and Privacy Officer, Partners HealthCare

4) The intersection of patient safety and medical device cybersecurity

医療機器には多くの脆弱性があり、そのなかには患者ケアに影響を及ぼすものも含まれます。しかし、これまで医療機器メーカは、セキュリティは後から考えるものとして扱い、いま世の中の流れに追いつこうとしているのが現状です(図表 3.7-4)。一方、医療機関はセキュリティに割り当てるリソースがない中で、サイバー攻撃と財政的なプレッシャーにさらされているのが現状です(図表 3.7-5)。

State of the Medical Device Vendor Security

- · Security is often an "afterthought"
 - Security frequently is not "by design"
 - Massive legacy device security debt
- · Most vendors are trying to catch up
- Vendors are Naïve About Risks and the Security of Their Struggling to change internal culture and build security awareness
 - Transitioning from device manufacturers to software companies
 - Unable to find staff with proper skills and knowledge
 - Struggling with diversity in their products and long lead times
- · Security has not been seen, or required, as a competitive advantage
- · Engineers & product designers really "love" their devices and are proud of it
- · Interactions with sales, legal and product managers tend to be unproductive
- · Vendors are trying to build security on top of immature development processes

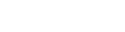
図表 3.7-4 セキュリティの現状 (医療機器ベンダー)

[出典] Session#CYB4

"The Intersection of Patient Safety and Medical Device Cybersecurity" Kevin A McDonald, Director of Clinical Information Security, Mayo Clinic Axel Wirth, Healthcare Architect, Symantec Corporation

State of Healthcare Provider Security

- · Hospital Demographics
 - 5,530 hospitals in the US
 - "Average" US hospital
 - + 160 bads
 - \$10.7 million NOII
- · Hospitals are under financial pressure
 - In 2016 hospital CEOs identified finances at the #1 challenge
 - Security tools and service costs are high
- Cybersecurity Preparations
 - · Healthcare is 5 to 10 years behind other industries
 - Healthcare industry spends 4% to 6% of IT budget spent on security, Financial industry is 12% to 15%
 - 94% of medical institutions say they have been victims of a cyber attack
 - Cybersecurity resources are hard to find and expensive



Healthcare organizations have limited

dollars and resources to devote to security

Products

Source: HIMSS18 セッション CYB4 資料

#HIM5518

図表 3.7-5 セキュリティの現状 (医療機関)

[出典] Session#CYB4

"The Intersection of Patient Safety and Medical Device Cybersecurity" Kevin A McDonald, Director of Clinical Information Security, Mayo Clinic Axel Wirth, Healthcare Architect, Symantec Corporation

このような状況下で患者リスクを低減していくためには、機器の保護、エコシステムの保護、機器の管理、インシデントの管理という 4 つの観点で、医療機関とメーカがそれぞれ役割を担って取り組みを行う必要があるとのことでした。

5) Evolving healthcare cybersecurity programs with lessons learned 現在サイバーセキュリティ体制を構築しつつある医療機関では、理屈で定めたことと、実際に行うこと (文化やリソースの問題など) には大きな違いがあり、そのギャップが課題となっています。米国バージニア州の Sentara Healthcare の CISO (図表 3.7-6)、マサチューセッツ州の Boston PainCare Center の Director IT (図表 3.7-7) がそれぞれの取り組みを通じて得られた教訓が紹介されました。

Dan - Top 10 Lessons Learned

- · Seek first to understand, and then to be understood Covey
- · Lead by building trust and influence, not by pointing at the org chart
- · Telegraph your plans, allow others buy-in, create joint ownership
- · Act and speak like the C-Suite and Board to be included
- · Make your boss and their boss look good
- · Create pre-determined outcomes
- · People first, then Process, then Technology
- · Recruit and re-recruit your People, from dedication to commitment
- . Look for "net adds", there is always a small win available, they add up
- · Capitalize on crisis

図表 3.7-6 Sentara Healthcare の教訓

[出典] Session#CYB5

"Evolving Healthcare Cybersecurity Programs with Lessons Learned" Bayardo Alvarez, Director, Information Technology, Boston Paincare Center Dan Bowden, Vice President & CISO, Sentara Healthcare

Bayardo - Lessons Learned

- · Start with basic, fundamental controls
- Balance cybersecurity and functionality
- Keep management apprised and on-board
- Awareness and education are cost-effective controls
- · Approach cybersecurity as a program, not a project
- It's about the business, not the technology

図表 3.7-7 Boston PainCare Center の教訓

[出典] Session#CYB5

"Evolving Healthcare Cybersecurity Programs with Lessons Learned" Bayardo Alvarez, Director, Information Technology, Boston Paincare Center Dan Bowden, Vice President & CISO, Sentara Healthcare

6) Healthcare cybersecurity: What's next

今後技術革新と共にサイバーセキュリティの範囲もまた広がっていくことを、アメリカ国立標準技術研究所(NIST)が示しました(図表 3.7-8)。

Cybersecurity: What's Next



- Cloud
- Mobile
- loT
- Data Integrity
- Cryptography
- · Blockchain
- AI/ML

図表 3.7-8 広がるサイバーセキュリティの範囲

[出典] Session#CYB6

"Healthcare Cybersecurity: What's Next"

Kevin Stine, Chief, Applied Cybersecurity Division, NIST

2 日目以降の教育セッションで、最も参加者が多く、注目を集めていたのは、米国食品医薬品局 FDA と米国の非営利研究機関 MITRE(マイター)による合同セッションでした(図表 3.7-9)。これから本格的にサイバーセキュリティに取り組もうとしている医療機関やメーカにとって、概念的な話や理想的なベストプラクティスを語る発表よりも、当局の考え(どこまで求めるのか)というのは重要なポイントであるため、参加者が多く、7~800 人が聴講していました。

昨年の HIMSS17 では、FDA は MD-ISAO (Medical Device Information Sharing & Analysis Organization) 構想について発表していました。ISAO は、2015 年の大統領令 13691 号(官民のサービス情報の共有化推進)により提唱された、複数の組織が情報を共有し、共同で分析する組織形態です。FDA は、医療機関やメーカなど組織に依らず、サイバー攻撃やサイバーセキュリティに関する情報を共有することを強調し、MD-ISAO への参画を推奨していました。

今年の FDA の発表は、「脆弱性の評価」とし、テーマをより具体的でピンポイントに絞ったものでした。 FDA は、ガイダンス「Postmarket Management of Cybersecurity in Medical Devices」で、脆弱性 評価に CVSS(共通脆弱性評価システム)を利用することを推奨していますが、本発表で改めて CVSS を推奨していました。 CVSS は有効な評価ツールですが、ヘルスケア向けのガイドラインが必要であるとし、MITRE と共同でガイドライン(Rubric)の策定を進めているとのことでした(図表 3.7-10)。 また企業に対して、ガイドライン策定への参画を求めていました。 ガイドラインは策定後、MDDT(Medical Device Development Tool; 医療機器開発および評価に使用するうえで有効であると FDA が認めた ツール)として登録される予定であるとのことから、リスク分析での CVSS 利用は事実上必須になっていくと思われます。



Approach

- Established a cross-stakeholder working group: medical device manufacturer, health care delivery organizations (HDOs), cybersecurity researchers, FIRST CVSS Special Interest Group, Industrial Control Systems Cyber Emergency Response Team (ICS-CERT), FDA
- Reviewed how some manufacturers and healthcare delivery organizations currently use CVSS
 - Concluded that CVSS is a suitable scoring system, but requires better guidance for use in healthcare settings
- · Developed draft rubric through a series of telcons and email
- · Initial exercises to validate approach
- Submitted a proposal to qualify as a Medical Device Development Tool



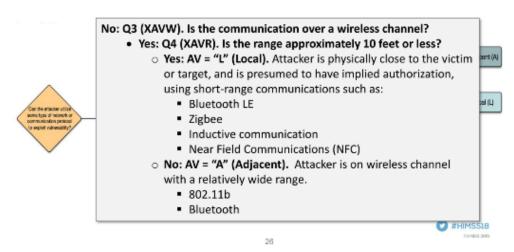
図表 3.7-9 FDA と MITRE の取り組み

[出典] Session#11

"Managing Medical Device Cybersecurity Vulnerabilities"

Seth Carmody, Cybersecurity Program Manager, U.S. Food and Drug Administration Penny Chase, Senior Principal Scientist, The MITRE Corporation

Rubric: Exploitability (Attack Vector)



図表 3.7-10 ガイドライン (Rubric) 案

[出典] Session#11

"Managing Medical Device Cybersecurity Vulnerabilities"

Seth Carmody, Cybersecurity Program Manager, U.S. Food and Drug Administration Penny Chase, Senior Principal Scientist, The MITRE Corporation 展示では、Cybersecurity Command Center という専用会場が設けられ、数十社が展示していました。大会期間中、何度か会場を訪れましたが、全体的に訪問者は少ないように感じられました。そのような中、PhilipsやGE Healthcareのブースでは、セキュアな医療機器だけでなく、医療従事者に対する教育プログラムやネットワーク構成の計画立案など、医療機関がサイバーセキュリティ体制を構築するための活動を総合的にサポートするサービスを提供できることをアピールしており、医療関係者と思われる人物が担当者と熱心に話し込む姿が見られました。これからサイバーセキュリティに取り組もうとしている医療機関にとって、個々のツールやサービスを選択することは当分先の話であり、いま必要なのは幅広く一括して提案してくれるパッケージサービスなのであろうと思われました。

医療機関に対してコンサルティングを行っている幾つかの企業に、「顧客がどのような点を最も気にしているか」と話を聞いたところ、医療機関に蓄積された個人情報の保護という規制への適合(HIPAA コンプライアンス)という観点と、サイバー攻撃を受けたときの経営に対する経済的な影響から、Patient Data が最も重要視されているとのことでした。

3.8 Artificial Intelligence

ヘルスケア領域への AI の適用例 (開発中のものを含む)

CATALAIZE 社のワークショップでは、取組中のユースケースが発表されていました。 医療機器と AI の音声信号処理を組み合わせて、大腸の音から腸閉塞を発見したり、会話からパーキン ソン病の進行を見つけようとするものとなっています(図表 3.8-1)。



図表 3.8-1 CATALAIZE 社が取組中のユースケース (腸閉塞の発見)

「出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

続いて顔の分析で感情を認識したり、疾病を発見しようとするものが発表されていました(図表3.8-2)。



図表 3.8-2 CATALAIZE 社が取組中のユースケース (顔分析)

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

また、仮想アバターやチャットボットを使って顧客サービス、トレーニング、個人向けアシスタント、ヘルスケアのコーチ、リモート監視、メンタルサポートの他、モバイルアプリ・チャットボットを利用して患者自身がトリアージや診断を自宅で行うサービスの紹介がありました(図表 3.8-3)。



図表 3.8-3 CATALAIZE 社が取組中のユースケース(チャットボット)

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

CATALAIZE 社のワークショップと Google 社のセッションとを合わせてみると、医療機器ベンダ・保険者・医療機関・患者とをつなぐバリューチェーンにおいては上記以外にも多くの応用例が考えられるとして以下の内容が発表されていました(図表 3.8-4、3.8-5)。

ワークフロー軸

業務効率化·病院経営	·保険請求処理効率化
改善	・診療録の文書化
	・遠隔コンサルテーションの文書化
	・病院の経営予測
	・地域住民の健康管理(Population health management)分析

スクリーニング・初期診断	・トリアージ
支援	・急性期・慢性期の初期判別
画像診断	・放射線科、皮膚科、病理科の画像解析やアノテーション付与
新薬の発見・開発	・薬効再評価、結合親和性の評価
	・ゲノミクス、プロテオミクス
	・臨床試験の患者選択、臨床試験管理

図表 3.8-4 AI の応用例(ワークフロー軸)

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

Session#DL14

"Machine Learning and AI in Healthcare with the Cloud: Practical Applications" David Parish, TLM Healthcare AI & ML, Google を元に筆者が作成

技術軸

映像化・可視化技術の応用	・痛みの識別・評価
IoT 機器との組み合わせ	・服薬アドヒアランス
	・糖尿病管理
	・フィットネスのトラッキング
	・治療方針の遵守監視
チャットボット、アバター	・心理面・感情面の健康支援
	・スケジュール管理
	・患者のトリアージ
	•症例比較、診断支援
	・術後のフォローアップ、監視
ロボティクス	・手術ロボット
	・自閉症児童向けのロボット
	・病院の自動化

図表 3.8-5 AI の応用例(技術軸)

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

Session#DL14

"Machine Learning and AI in Healthcare with the Cloud: Practical Applications" David Parish, TLM Healthcare AI & ML, Google を元に筆者が作成

AI をヘルスケアに適用する場合の課題

Google 社は マシンラーニングの制約とヘルスケアデータの課題を取り上げていました。CATALAIZE 社は、会場の参加者による伝言ゲームを通じて、データの品質管理が課題であるとしていました。

(1) マシンラーニングの制約

- ・発見すべき根本的な「真理」をある程度「一般化」するだけのモデルである。
- ・千件から1万件もの多くの事例が必要になる。
- ・事例には正確な「ラベル」が必要でそのラベルは出力結果を期待したものである。
- ・事例が良ければよいほどモデルも良くなる。

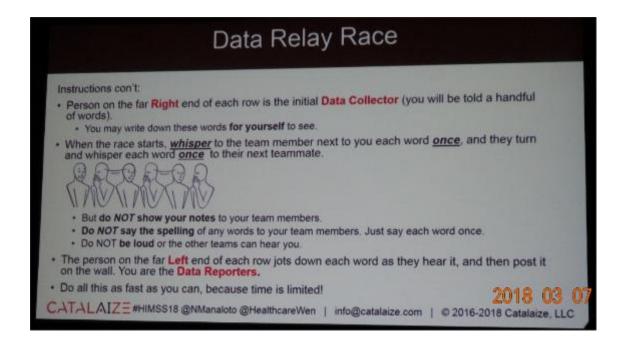
(2) ヘルスケアデータの課題

- ・データがバラバラなシステムに異なったフォーマットで保存されている。
- ・データが構造化されていなかったり、画像や fax であったりすることが多い。(90%は非構造化)
- ・トレーニングモデルを共有したり識別するためにはデータのブロックを解除する必要がある。
- ・プライバシーに関する契約と個人の同意により多くのデータの使用がブロックされる。
- ・医学的診断は主観的なのでマシンラーニングの品質ラベルが乏しい。
- ・ヘルスケア領域の専門知識がなくてマシンラーニングをカスタマイズできない。

(3) データの品質管理

15 人×6 列 が 1 列 1 チーム、全部で 6 つのチームがそれぞれ 10 個の単語をひとつずつ伝えていく伝言ゲームを行った(図表 3.8-6)。

全問正解は1チームのみ。0点が3チーム。残念ながら私のチームも0点だった。



図表 3.8-6 伝言ゲーム

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

このゲームを通して学んだこととして下記3点をピックアップしていました。

- ①収集の問題
 - ・誤解、人間と機械の両方が間違う場合もありうる
- ②伝達の問題
 - ・速度と量 vs 質と正確性
 - ・データの出所
 - ・データの完全性
- ③翻訳の問題
 - ・臨床の専門家が意味を明確にする必要がある
 - ・同義語の互換性

課題を解決するための方策

Google 社は クラウドプラットフォームの提供、 CATALAIZE 社は データマネジメント基盤とフェーズ 毎のチェックによる課題解決を提案していました。

(1) Google クラウドプラットフォーム

開発者は 21 百万人。内データサイエンティストは百万人未満。さらにディープラーニングの研究者は 1000 人くらいしかいません。ヘルスケア関連データの 90%は非構造化データとなっています。 クラウドのマ シンラーニング API が非構造化データを理解するのに役立つとして下記をアピールしていました。

Google Cloud Platform 3つの活用方法(図表 3.8-7)

その1:Google が開発し、トレーニングしたモデルを API として使用する

その2:Google モデルからスタートして自分のデータを活用してカスタマイズする

その3:自分のモデルを開発してトレーニングする



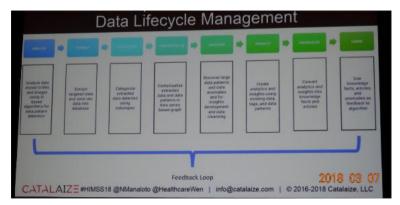
図表 3.8-7 Google Cloud Platform の 3 つの活用方法

[出典] Session#DL14

"Machine Learning and AI in Healthcare with the Cloud: Practical Applications" David Parish, TLM Healthcare AI & ML, Google

(2)データマネジメント

データの品質は、導き出される結論、ルール、リソースの利用そして最終的には患者安全に影響を与えます。データに依存する分析やプロジェクトにはデータライフサイクル管理、データ戦略・データガバナンスの強力な基盤が必要です。データ収集・転送・翻訳のそれぞれの段階でのチェックが必要であるとし、下記のような図を発表していました(図表 3.8-8、3.8-9)。



図表 3.8-8 Data Lifecycle Management

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize



図表 3.8-9 Data Governance

[出典] Session#AC18-ARTINT1

"Applied AI & Process Automation Workshop"

Nardo Manaloto, CEO, Catalaize

Wen Dombrowski, Chief Convergence Officer, Catalaize

3.9 Analytics

HIMSS Analytics の展示ブースでは、各種 HIMSS の調査・分析内容の発表のほかに、HIMSS の Analytics 成熟度採択モデル AMAM(The Adoption Model for Analytics Maturity)の紹介を行っていました(図表 3.9-1)。



図表 3.9-1 HIMSS Analytics 展示ブースの様子

8つのステージ(0-7)のAMAMモデルはヘルスケア関連組織のデータ活用・分析環境の成熟度のフレームワークとして構築され、戦略立案に役立てることが期待されています(図表 3.9-2)。またステージ 7へのロードマップやそれを実現するためのツールキットの説明が行われていました。併せてブース内の展示セッションでは、事例として Duke 大学がステージ 7への道のりが発表されていました。

STAGE	HINSS Analytics AMAM Adoption Model for Analytics Maturity Cumulative Capabilities
7	Personalized medicine & prescriptive analytics
6	Clinical risk intervention & predictive analytics
5	Enhancing quality of care, population health, and understanding the economics of care
4	Measuring and managing evidence based care, care variability, and waste reduction
3	Efficient, consistent internal and external report production and agility
2	Core data warehouse workout: centralized database with an analytics competency center
1	Foundation building: data aggregation and initial data governance
0	Fragmented point solutions

図表 3.9-2 AMAM モデル

[出典]

https://www.himssanalytics.org/sites/himssanalytics/files/HIMSS%20Analytics%20 AMAM%20-%20web.pdf

教育セッションにおける Data Analytics/ Clinical and Business Intelligence トピックスのセッションは 26 件あり、アウトカム向上への Analytics 活用事例から、意思決定支援、Visualization、AI や機械学習まで、幅広いテーマが対象になっていました。下記にいくつか紹介します。

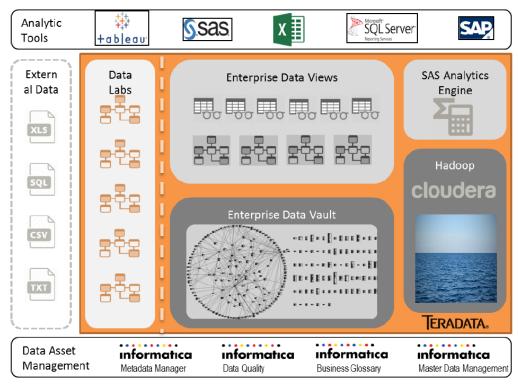
クリーブラントクリニックのセッション"Clinical and Operational Excellence at the Cleveland Clinic"では、当該組織の Analytics 戦略と、救急サービス、クリニカルパス、患者アクセス、経営レビューの事例を発表していました。 Analytics の重要要素(図表 3.9-3)と現在のシステム概要図は下図の通りです(図表 3.9-4)。



図表 3.9-3 Analytics の重要要素

"Clinical and Operational Excellence at the Cleveland Clinic"
Michael Mann, Lead Systems Analyst, Cleveland Clinic
Joan Thompson, Lead Business Intelligence Analyst, Cleveland Clinic

Comprehensive Analytics Strategy

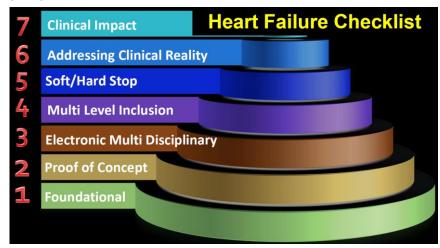


図表 3.9-4 Analytics Platform

"Clinical and Operational Excellence at the Cleveland Clinic"
Michael Mann, Lead Systems Analyst, Cleveland Clinic
Joan Thompson, Lead Business Intelligence Analyst, Cleveland Clinic

クリーブラントクリニックの"Data Visualization and Improving Quality Outcomes"の発表においては、心血管施設における試みとして、電子カルテへの心不全チェックリストの実装が紹介されていました(図表 3.9-5)。

退院計画は入院時から始まり、データの正確さと、ケア現場における状況の視覚化と分析が重要なことが強調されていました。



図表 3.9-5 構築ステップ

[出典] Session#20

"Data Visualization and Improving Quality Outcomes: A Davies Story"

Danielle Oryn, Chief Medical Informatics Officer, Petaluma Health Center

Kathleen Kravitz, Heart and Vascular Institute – Quality Director, Cleveland Clinic

Shaun Nelson, Senior Data Analyst, Petaluma Health Center

Umesh N Khot, Vice Chairman, Cardiovascular Medicine and Chief Quality Officer, Heart and Vascular Institute, Cleveland Clinic

カナダのトロントにある St. Michael's Hospital のセッション"Beyond BI: Building a Rapid-Response Advanced Analytics Unit"においては、既存のデータウェアハウスだけではなく、より質の高い患者ケアや業務効率化を実現するための即時性のある高度な分析を支援するために、分析ツールやアルゴリズムを導入して成果をあげつつあることが報告されました(図表 3.9-6)。



図表 3.9-6 Business Architecture

[出典] Session#92

"Beyond BI: Building a Rapid-Response Advanced Analytics Unit" Jeremy Petch, Project Director, St. Michael's Hospital

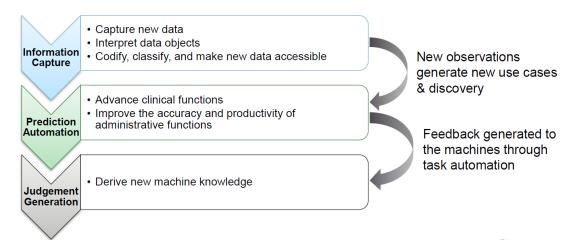
ノースキャロライナの Mission Health のセッション" How Analytics Can Create a Culture of Continuous Improvement"においても、即時性のあるデータ分析による意思決定のサポートが実施されていました(図表 3.9-7)。



図表 3.9-7 Real Time Data Views to Trach Specific Milestones

[出典] Session#278

"How Analytics Can Create a Culture of Continuous Improvement" Chris DeRienzo, Chief Quality Officer, Mission Health, Mission Hospital Geisinger Health のセッション"Managing Machine Learning: Insights and Strategy"では、下図の機械学習ユースケース評価のフレームワークが示され、2つのプロジェクト(がんを対象の放射線レポート記事のテキストマイニングと、ニューラルネットワークによる入院ベッド管理)において業務的・臨床的利点を検討していました(図表 3.9-8)。



図表 3.9-8 Determining the Business Case: A Framework

[出典] Session#141

"Managing Machine Learning: Insights and Strategy"
Elizabeth Clements, Associate Enterprise Architect, Geisinger Health
Debdipto Misra, Senior Data Engineer, Geisinger Health

3.10 Interoperability Showcase



図表 3.10-1: HIMSS Interoperability Showcase レイアウト図

[出典]

http://www.interoperabilityshowcase.org/las-vegas/2018

HIMSS Interoperability Showcaseは、34,000平方フィート(約3,158平方メートル)の大規模な展示会場を確保し、"Connections that Transform Health"のテーマの元に、図表3.10-1にあるように、ユースケースごとにブースを設けてデモンストレーションを実施し、Education Theaterでは各種プレゼンテーションが行われていました。

ユースケースのブースは下記の16ブースのほかに、VA(Veterans Affairs 退役軍人局)の Pursuit of Seamless Careの3ブースがありました。

- 今回紹介されていたユースケース:
 - 1. Heart Attack
 - 2. Opioid Addiction Care
 - 3. Collaborative Community Cancer Care
 - 4. Connecting Virtual Teams: Smart Care for HepC
 - 5. Reinventing Medication Management

- 6. Value Based Care
- 7. Battlefield to Bedside
- 8. Transplant Care
- 9. Cancer, Registry, Discovery, & Research
- 10. Cardiovascular & Diabetes Risks
- 11. Nationwide Care Transitions
- 12. Immunization & Vaccination
- 13. Birth Reporting & NICU
- 14. Telehealth & Stroke Continuum of Care
- 15. Public Health Reporting
- 16. Labor & Delivery

[出典]

 $http://www.interoperabilityshowcase.org/sites/interoperabilityshowcase/files/showcase e_handout_print_final_2.21.18_web.pdf\\$

各ブースでは、4社から8社の企業・団体が参画し、実機とパネル等を使用したデモンストレーションがシナリオに沿って行われ、各社のシステム間の情報連携が紹介されていました(図表3.10-2)。





Interoperability Showcase 参加企業·団体

VAの Pursuit of Seamless Care ブース





Reinventing Medication Management $\check{\mathcal{I}}-\mathcal{I}$ Cancer, Registry, Discovery & Research $\check{\mathcal{I}}-\mathcal{I}$

図表 3.10-2 各ブースの様子

ユースケースの中から3つのシナリオと、参画した企業・団体、データ交換に使われている規約などを紹介します。

1) Nationwide Care Transitions 全国規模のケア移行



CYNTHIA - NATIONWIDE CARE TRANSITIONS

Cynthia, a 66-year-old, is admitted, treated and discharged at home in Florida for pulmonary embolism. While visiting her daughter in Colorado, she suffers a fractured hip, has surgery and is discharged with home health. She elects to stay with her daughter until she is ready to travel home and continue her care, avoiding readmission. Regardless of where her care occurs, Cynthia and her healthcare providers have access to her health records nationwide through CommonWell Health Alliance, resulting in a positive health outcome.

Participating Organizations: Brightree, Cerner, CommonWell, eClinicalWorks, Greenway Health, Imprivata, MEDITECH, One Record

図表 3.10-3 シンシアのシナリオ

「シンシア(66歳)は、肺塞栓症のために自宅のあるフロリダで入院、治療、そして退院しました。コロラドにいる彼女の娘を訪れている際に、彼女は股関節を骨折してしまい、手術を受け、退院して在宅治療となりました。彼女は再入院になることを避けるため、自宅に帰れる状態になるまで、娘のところで治療を続けることにしました。シンシアと彼女の医療提供者は、CommonWell Health Alliance を通して、ケアがどこで行われているかにかかわらず、全国の彼女の健康記録にアクセスでき、結果的に健康に良い成果をもたらします。」



図表 3.10-4 Nationwide Care Transitions ブースの様子

CommonWell Health Alliance はノンプロフィットの組織で、Cerner や McKESSON など多くの EHR や医療情報関連企業が参画しています。このユースケースでは、データ交換に HL7 FHIR,CCDA, IHE XCA, ONC Direct などが使用されていました。

2) Value based care 価値に基づくケア



TIM - VALUE BASED CARE

Tim Jones, a 54-year-old police officer, has diabetes and presents at his primary care provider with an abnormal lab result. Follow his journey through primary care, consultations and home-based care as his care pathway is defined and implemented. Through sharing of data and utilization of a centralized repository of information accessed by providers, Mr. Jones receives the appropriate care and equipment in low-cost settings that improve his nutritional intake, health and quality of life.

Participating Organizations: Academy of Nutrition and Dietetics, AHRQ, AllianceChicago, Brightree, CDC, Epic, GE, Infor, Netsmart

図表 3.10-5 ティムのシナリオ

「ティム・ジョーンズ(54 歳警察官)は糖尿病を患っており、プライマリケア施設で異常な検査結果が出ました。フォローするプライマリケア、診療所、在宅ケアによるケアのパスウェイが定義され、治療が実行されています。中央集中型リポジトリによるデータの共有と利用を通じて、様々なプロバイダが情報にアクセスします。それによって、ジョーンズ氏は適切なケアと機器の利用を低コストで受けることができ、彼の栄養摂取、健康および生活の質向上に結びつきます。」



図表 3.10-6 Value Based Care ブースの様子

このユースケースでは、データ交換に、HL7 CDA, CCDA, FHIR CQL(Clinical Quality Language), CDS(Decision Support)、および IHE XDR, XDS 等が使用されていました。

3) Telehealth & Stroke Continuum of Care 遠隔医療および脳卒中の継続ケア



EMILY - TELEHEALTH & STROKE CONTINUUM OF CARE

"Time is Brain" for Emily, a 52-year-old, has had a stroke. Telehealth expedites time to her care through pre-hospital video assessment in the ambulance. Imaging data is shared from a small rural community hospital to a stroke neurologist at an urban hospital, resulting in timely administration of a life-saving, clot-busting drug. Patient engagement is increased post-discharge through the use of a health app that aggregates Emily's data and shares her progress with all members of her interprofessional care team.

Participating Organizations: Epic, INFINITT, National Consortium of Telehealth Resource Centers,
PatientLink, Vidyo, ViTel Net

図表 3.10-7 エミリーのシナリオ

「地方に住む脳卒中患者であるエミリーにとって、時間はブレインです。遠隔医療(Telehealth)によって、救急車内で病院到着前にビデオによる評価が行われ、意思決定のシームレスな連携がケアにかかる時間を短縮します。画像データは、小さな地域病院から都市部の病院にいる脳卒中専門の神経科医に共有され、命を救う血栓溶解薬によるタイムリーな治療管理を可能にします。患者データを統合し、専門ケアチームの全メンバー間で患者の進捗状況を共有するヘルスアプリを使用して、退院後の患者エンゲージメントを高めることができます。」



図表 3.10-8 Telehealth & Stroke Continuum of Care ブースの様子

このユースケースではデータ交換に、ONC Direct,HL7 V2, HL7 CCDA/CCD, IHE SWF, DICOM c-store 等が利用されていました。なお、CCD(The Continuity of Care Document)は ASTM の CCR(Continuity of Care Record)によって定義されるデータを HL7 CDA に沿って記述 するものです。

● Education Theater では下記の 24 セッションが開催されました(図表 3.10-9)。



図表 3.10-9 Education Theater におけるセッション風景

3月6日

- ✓ Blockchain Reset Seeing through the Hype and Starting down the Path
- ✓ Improving Health Through Interoperability and Information Sharing
- ✓ Payers & Providers Team Up to Improve Patient Outcomes
- ✓ Design Guidelines to Ensure a Direct Path Into the EHR for IoT
- ✓ Veterans Health Information Exchange (VHIE)
- ✓ Securing Patient Data: Limiting Loss with Rate Locking and De-Identification
- ✓ Taking Interoperability to the Next Level: How ConCert and Continua Testing and Certification Programs Work
- ✓ Launching a Global Digital Health Initiative to support the Olympic Games
- \checkmark The CARIN Alliance and Apple Advancing consumer-directed exchange

3月7日

- ✓ Industry Efforts To Drive Interoperability Progress
- ✓ Electronic Health Record Modernization Program
- ✓ The Payer/Provider Perspective on Interoperability The DaVinci Project
- ✓ Late Breaking Session: Interoperability Policy
- ✓ HL7 & IHE: Paving a Better Path to Interoperability
- ✓ Immunization Capabilities Move to the Marketplace: HIMSS Immunization Integration Program Enables Healthier Populations
- ✓ Maximizing EHR Data for Public Health Reporting
- ✓ Status of HIT Adoption in LTPAC: Drivers and Policy Options
- ✓ Argonaut Project Town Health Meeting

3月8日

- ✓ Sharing Mainstream The Digital Bridge & The Learning Health Community
- ✓ IHE's Plug-a-thon Dispels New Health Technology Hype vs Value
- ✓ A More Meaningful Patient Story using C-CDA: Tell It, Use It, Share It.

- \checkmark Women in Tech Accelerating Innovation & Interoperability Together
- ✓ Office of Connected Care/Telehealth
- \checkmark CDISC & HL7 Moving the Clinical Research Agenda Forward

4. 教育セッション一覧

HIMSS18のスケジュール・サイトから取得したデータを元に作成した教育セッション一覧を掲載します。 Event type の"Education"のセッションは 490 件でしたが、Topics(トピック分類)のタグは一つのセッションに複数つけられているものもあるため、トピック分類付きのセッション累計は 496 件となりました。 なお、HIMSS17 と比較すると、HIMSS18 のセッション数は 200 件ほど増加していました。

表 1 に HIMSS18 と HIMSS17 のトピック分類とセッション件数を示します。 HIMSS18 におけるトピック分類の変更は、セッション数の多い"Culture of Care & Care Coordination"と"Population Health"が 2 つの独立したトピックとなり、同じく"Improving Quality Outcomes Through Health IT"と"Patient Safety & Health IT"が独立しました。また、セッション数は少ないですが、"Pharmacy Standards & Technology、Social"と"Psychosocial & Behavioral Determinants of Health"の 2 つのトピックが追加されていました。

表 2 にセッション ID 順、表 3 にトピック分類別の教育セッションのタイトル一覧を掲載します。

4.1 表 1 トピック分類とセッション件数

HIMSS18		HIMSS17			
番号	トピック分類名	件数	トピック分類名	件数	
1	Clinical Informatics & Clinician	26	Clinical Informatics and Clinician	1.4	
	Engagement	20	Engagement	14	
2	Compliance, Risk Management &	14	Compliance, Risk Management, and	2	
	Program Integrity	14	Program Integrity		
3	Connected Health & Telehealth	38	Connected Health	47	
4	Consumer & Patient Engagement	26	Consumer and Patient Engagement	30	
5	Culture of Care & Care Coordination	21	Care Coordination, Culture of Care and	47	
6	Population Health	22 Pop Healt		4/	
7	Data Analytics/Clinical & Business	26	Clinical and Business Intelligence	19	
/	Intelligence	20	Cillical and business intelligence	19	
8	EHRs	11	EHRs	2	
9	Emerging Payment Models for	13	Business of Healthcare and New	13	
9	Value-Based Care	13	Payment Models	13	
10	Health Informatics Education, Career	Health Informatics Education, Career		21	
10	Development & Diversity	13	Diversity	2.1	
11			Health Information Exchange,	19	
11	Interoperability & Data Integration	25	Interoperability and Data Access	19	

12	HIT Infrastructure & Standards	8	IT Infrastructure, HIT Stds & Medical Device Integ	11
13	Human Factors, User Experience & Design	9	Human Factors, User Experience and Design	24
14	Improving Quality Outcomes Through Health IT	30	Quality and Patient Safety Outcomes	16
15	Patient Safety & Health IT	3		
16	Innovation, Entrepreneurship & Venture Investment	51	Innovation, Entrepreneurship and Venture Investment	55
17	Leadership, Governance, Strategic Planning	29	Leadership, Governance, Strategic Planning	12
18	Pharmacy Standards & Technology	7	-	-
19	Precision Medicine/Genomics	12	Genomics/Precision Medicine	3
20	Privacy, Security & Cybersecurity	38	Cybersecurity and Privacy & Security	23
21	Process Improvement, Workflow, Change Management	25	Process Improvement, Workflow, Change Management	15
22	Public Policy	14	Health IT Public Policy	12
23	Social, Psychosocial & Behavioral Determinants of Health	4	-	-
24	none(分類なし, Women in Health IT)	31	-	-
	トピック分類配分累計	496	トピック分類配分累計	399

4.2 表 2 セッション ID 順教育セッション一覧

ID	タイトル	トピック分類
	Technology for a Healthier Future: Modernization,	Innovation,
1		Entrepreneurship and
	Machine Learning, and Moonshots	Venture Investment
	The Adoption Gap: Challenges and Strategies in	Process Improvement,
2	Emerging Technologies	Workflow, Change
	Emerging recimologies	Management
3	Real Quality: A Recipe for Healthier Patients and Happier	Population Health
	Doctors	
4	Enterprise-Wide Value Realization through IT: A Davies	EHRs
' 	Story	
5	Better Together	Emerging Payment Models
	Detter rogerier	for Value-Based Care
6	60 Days to Clinical Communications Success	Clinical Informatics &
	Supplies Samuel Supplies Supplies	Clinician Engagement
	Taking Action on Opioids Through Research and Best Practice	Improving Quality
7		Outcomes Through Health
		IT
10	Advancing Digital Health in Canada	Clinical Informatics &
		Clinician Engagement
11	Managing Medical Device Cybersecurity Vulnerabilities	Privacy, Security &
		Cybersecurity
12	Scaling a Customized Patient Experience	Consumer & Patient
	Seaming a casternized rations Experience	Engagement
13	Stacking Predictive Models to Reduce Readmissions	Data Analytics/ Clinical and
	Stacking Fredictive Models to Reduce Readmissions	Business Intelligence
14	A Framework to Support Measure Development for	Connected Health and
	Telehealth	Telehealth
15		Innovation,
	Beyond the Pilot: Value-Driven Innovation	Entrepreneurship and
		Venture Investment
	AI, Deep Learning and Body Sensor Networks for	Health Informatics
16	Healthcare Transformation	Education, Career
		Development & Diversity

ID	タイトル	トピック分類
		Pharmacy Standards &
		Technology
17	How CMS is Leveraging Information and Technology in Medicare and Medicaid	Public Policy
	Care Pathways and Data Analytics for Advancement of	Process Improvement,
18	Healthcare	Workflow, Change
	Treatment	Management
19	Optimizing Care Transitions Across the Continuum	Culture of Care & Care
19	Optimizing care transitions Across the continuum	Coordination
20	Data Visualization and Improving Quality Outcomes: A	Data Analytics/ Clinical and
20	Davies Story	Business Intelligence
	LITE Date. The Value Drangetian for Dayons and	Health Information
21	HIE Data: The Value Proposition for Payers and	Exchange, Interoperability
	Providers	& Data Integration
22	Managing Your Entire Population to Avoid Value-Based Failure	Population Health
		Improving Quality
23	Data-Driven Patient Care: Making eCQMs Work for You	Outcomes Through Health
		IT
	A HIPAA Compliance, Enforcement, and Policy Update	Privacy, Security &
24	from the HHS Office for Civil Rights	Cybersecurity
25	ONC Town Hall	Public Policy
	What's App Doc? Canadian Adventures in Secure	Privacy, Security &
26	Messaging	Cybersecurity
		Privacy, Security &
27	Deploying a Holistic Identity Management	Cybersecurity
		Consumer & Patient
28	Patient Engagement: IT Takes a Village	Engagement
20		Data Analytics/ Clinical and
29	Early-Detection Pediatric Sepsis Algorithm	Business Intelligence
20	How AI and Machine Learning are Disrupting the Current	Data Analytics/ Clinical and
30	Healthcare Ecosystem	Business Intelligence
		Innovation,
31	Due Diligence for Health IT Investments	Entrepreneurship and
		Venture Investment

ID	タイトル	トピック分類
		(Women in Health IT)
32	For Students Only: An Orientation	(None)
34	Developing a Strategy to Manage Legacy Data	Process Improvement, Workflow, Change Management
35	Engaging and Empowering Patients: Redesigning Patient Care	Culture of Care & Care Coordination
36	Standardizing Use of Clinical Best Practice with Information and Technology: A Davies Story	Improving Quality Outcomes Through Health IT
37	The Blues®: Innovative Solutions Improving Outcomes	Clinical Informatics & Clinician Engagement
38	IT Transformation: Positive Culture Is King	Process Improvement, Workflow, Change Management
39	Transforming Medicaid Delivery on Staten Island: A Case Study	Improving Quality Outcomes Through Health IT
40	Stewards of Healthcare and Public Health Critical Infrastructure	Privacy, Security & Cybersecurity
41	Meaningful Measures	Clinical Informatics & Clinician Engagement
42	Imagine a Hospital Ward Without Code Blue Alarms	Improving Quality Outcomes Through Health IT
43	The Cybersecurity Risk Management Framework Applied to Enterprise Risk Management	Privacy, Security & Cybersecurity
44	Lessons from Lawsuits: How to Use Health IT to Avoid Being Sued and Improve Healthcare Teams	Consumer & Patient Engagement
45	Driving Enterprise ROI by Eliminating Data Silos	Data Analytics/ Clinical and Business Intelligence
46	The Impact of Smartphone Technology in Clinical Practice	Connected Health and Telehealth
47	Virtual Reality Gets Real in Healthcare	Innovation, Entrepreneurship and

ID	タイトル	トピック分類
		Venture Investment
48	Improving Hoaltheare Through Co Docign	Human Factors, User
	Improving Healthcare Through Co-Design	Experience and Design
49	IT Due Dilianna in an Eura of Managara and Association	Leadership, Governance,
43	IT Due Diligence in an Era of Mergers and Acquisitions	Strategic Planning
		Process Improvement,
50	Closing the Gap: Risk Insights at the Point of Care	Workflow, Change
		Management
51	Sustainable Population Health: One Health System's Journey	Population Health
	Llaw on LITE and a Llastic Diag Innovated to Impress	Health Information
52	How an HIE and a Health Plan Innovated to Improve Medical Reconciliation	Exchange, Interoperability
	Medical Reconciliation	& Data Integration
53	Our Evolving Journey with Clinical Decision Support	Clinical Informatics &
	Our Evolving Journey With Clinical Decision Support	Clinician Engagement
54	Trailblazing a New Path for Healthcare and Life Sciences	Consumer & Patient
54		Engagement
	Recognition Testing Improves Immunization Workflow and Data	Improving Quality
55		Outcomes Through Health
		IT
56	Infectious Disease Rapid CDS Deployment: A Zika Case	Population Health
	Study	
57	TEFCA Update	Public Policy
		Health Information
58	Sutter Health: A Health Data Sharing Case Study	Exchange, Interoperability
		& Data Integration
59	HIPAA and a Cloud Computing Shared Security Model	Privacy, Security &
		Cybersecurity
60	Safer Transition from the ER Using Asynchronous Virtual	Consumer & Patient
	Care	Engagement
61	Solving the Physician Attribution Puzzle for Length of	Data Analytics/ Clinical and
	Stay	Business Intelligence
62	Home Hospital: Telemedicine for Acute Care Patients	Connected Health and
UΖ	Trome mospital. Telemedicine for Acute Care Fatients	Telehealth

ID	タイトル	トピック分類
63	Establishing and Nurturing a Culture of Innovation: Lessons Learned from Global Disrupters	Innovation, Entrepreneurship and Venture Investment
64	Learning from the Devastating Effects of Three Hurricanes: The Critical Role of Health IT	(None)
65	The Value of the Clinical Narrative in Cancer Care	Consumer & Patient Engagement
66	Optimizing EHR Governance to Improve the User Experience	Process Improvement, Workflow, Change Management
67	Inappropriate Opioids, Adverse Outcomes and IT Solutions	Population Health
68	HIE Image Sharing for a Statewide Stroke Network	Health Information Exchange, Interoperability & Data Integration
69	Becoming a Data-Driven Organization: The Journey to HIMSS Analytics EMRAM Stage 7	Clinical Informatics & Clinician Engagement
70	The Role of Technology in Increasing Access to Care by Reaching Patients Where They Are	Population Health
71	The Art and Science of eCQM Field Testing	Improving Quality Outcomes Through Health IT
72	Creating a Population Health Strategy That Scales	Population Health
73	Quality Payment Program Year 2	Clinical Informatics & Clinician Engagement
74	Serious Mental Illness: Data Use to Improve Health Outcomes	Improving Quality Outcomes Through Health IT
75	Adolescent Privacy: Solve This Problem or I'll Text You	Privacy, Security & Cybersecurity
76	Transforming Patient Experience with a Mobile Wayfinding Platform	Consumer & Patient Engagement
77	Improving Hospital Capacity Management Through Monte-Carlo Simulation	Data Analytics/ Clinical and Business Intelligence
78	NYP OnDemand: The Next Generation of Care Delivery	Connected Health and

ID	タイトル	トピック分類
		Telehealth
79	ReImagine HHS— Leveraging Digital Innovation to Transform the Delivery and Administration of Health and Human Services	Public Policy
80	Educating the Next Generation of Physician Informaticians	Emerging Payment Models for Value-Based Care Pharmacy Standards & Technology
81	Insights Into the Changing Role and Priorities of the CIO	Leadership, Governance, Strategic Planning
82	Real ROI: Using RTLS to Improve Pump Utilization and Save \$1M	Process Improvement, Workflow, Change Management
83	HIEs, CommonWell, Carequality Can Work Together: Here's How	Health Information Exchange, Interoperability & Data Integration
84	Using Simulation Training to Speed EHR Adoption	EHRs
85	Preparing Your HIT Infrastructure for Digital Pathology and Beyond	Clinical Informatics & Clinician Engagement
86	Congressional Forum	Public Policy
87	Integrating Population Analytics and the EHR Environment	Population Health
88	Population Health and Data Foster Success in 23 MIPS-ACOs!	Emerging Payment Models for Value-Based Care
89	Fraud and Abuse Compliance for the Health IT Industry	Compliance, Risk Management, and Program Integrity
90	The Five Pillars of a Best-in-Class Cybersecurity Program	Privacy, Security & Cybersecurity
91	How to Create a World-Class Financial Service Center	Consumer & Patient Engagement
92	Beyond BI: Building a Rapid-Response Advanced Analytics Unit	Data Analytics/ Clinical and Business Intelligence
93	Behavioral Health: A Launchpad for Enterprise	Connected Health and

ID	タイトル	トピック分類
	Telehealth	Telehealth
		Process Improvement,
95	Improving Care and Generating ROI: A Davies Story	Workflow, Change
		Management
06	HIMSS CEO Addresses Leveraging Information and	Leadership, Governance,
96	Technology to Minimize Health's Economic Challenges	Strategic Planning
0.7	The Washington Perspective: A Fireside Chat with the	Dublic Delice
97	ONC National Coordinator	Public Policy
00	Duocicion Madicina, Consustina II, no fuena Doplita.	Precision
98	Precision Medicine: Separating Hype from Reality	Medicine/Genomics
00	Precise Disease Classification Optimizes Bundled	Emerging Payment Models
99	Payments	for Value-Based Care
	Improving Quality Quitagness in a Right Record Worlds A	Improving Quality
100	Improving Quality Outcomes in a Risk-Based World: A	Outcomes Through Health
	Davies Story	IT
101	Interoperability Sets the Foundation for Care	Culture of Care & Care
101	Coordination	Coordination
	Attractiveness of the Behavioral Health Market: Understanding Valuations, Trends and Growth	Innovation,
102		Entrepreneurship and
		Venture Investment
	Learning from Patient Safety Events: A Shift from Quantity to Quality	Improving Quality
103		Outcomes Through Health
		IT
104	Information Operations (J-6) – Support Joint Readiness	Leadership, Governance,
104	Thornation Operations (3-0) – Support Joint Readiness	Strategic Planning
105	Leveraging Medicaid Data to Advance Health in the	Public Policy
	States	
106	Creating Considered Consumer Experiences: What Can	Human Factors, User
100	We Learn from Other Industries?	Experience and Design
107	Attacking Your Own Network: A Lesson on Penetration	Privacy, Security &
	Testing	Cybersecurity
108	Building an Analytics-Driven Laboratory Outreach	Data Analytics/ Clinical and
	Business	Business Intelligence
109	Empowering Data-Driven Health	Data Analytics/ Clinical and
	Empowering Data-Driven Health	Business Intelligence

ID	タイトル	トピック分類
110	Solutions, Strategies and Success: How Can	Connected Health and
110	Telemedicine Help?	Telehealth
442		Consumer & Patient
111	Connected Care IRL (In Real Life)	Engagement
		Health Information
112	The Nuts and Bolts of Product Testing and Certification	Exchange, Interoperability
		& Data Integration
	Inchiring Digital Health Innovation, Transformative	Innovation,
113	Inspiring Digital Health Innovation: Transformative	Entrepreneurship and
	Insights from Across the Globe	Venture Investment
114	Applying Genomic Intelligence and Decision Support at	Precision
114	the Point of Care	Medicine/Genomics
115	Shaping the Future of Innovation at HHS: U.S.	Dublic Delicy
115	Department of Health and Human Services Town Hall	Public Policy
	Improving Throughout and Decreasing Length of Stay: A Davies Story	Process Improvement,
116		Workflow, Change
		Management
117	Efficacy of Multimedia in Patient-Physician Interactions	Consumer & Patient
		Engagement
118	Beyond the EHR: Continuous Innovation for the	Population Health
	Transition to Value-Based Care	
	Shared Savings Power Tools: An ACO-Focused App and Open HIE	Improving Quality
119		Outcomes Through Health
		IT
120	The Evolution & Global Deployment of Desktop to Data	HIT Infrastructure &
	Center (D2D)	Standards
121	Quality Payment Program: Advancing Care Information	EHRs
122	Patients As Consumers: How Leading Providers Are	Human Factors, User
	Digitally Transforming Patient Consults	Experience and Design
123	Detecting Cyberthreats with ATT&CK-Based Analytics	Privacy, Security &
	Detecting Cybertineats with ATTACK-Daset Analytics	Cybersecurity
124	Expanding Access to Advance Care Plans with HIE	Consumer & Patient
124	Expanding Access to Advance Care Flans with file	Engagement
125	How Data Analytics Reduces Nurse Leakage, Improves	Data Analytics/ Clinical and
	Care	Business Intelligence

ID	タイトル	トピック分類
		Health Information
126	Is Blockchain Right for Good Health?	Exchange, Interoperability
		& Data Integration
127	The Value of Behavior Science for Effective Patient	Human Factors, User
127	Engagement	Experience and Design
120	HIMSS Student Case Competition: Defining the Future of	(NI)
128	Transformative Care Today	(None)
120	Duilding a Healthier Fisture with MI and the Claud	HIT Infrastructure &
129	Building a Healthier Future with ML and the Cloud	Standards
120	Conomics Nursing and the EUD	Precision
130	Genomics Nursing and the EHR	Medicine/Genomics
131	What CIOs Should Know About Health System Strategy	Leadership, Governance,
131	in 2018	Strategic Planning
		Improving Quality
132	Reducing Harm in Pediatric Care: A Davies Story	Outcomes Through Health
		IT
	Embracing Longitudinal Person-Centered Care Plans	Health Information
133		Exchange, Interoperability
		& Data Integration
	Case Studies on Transforming Care with Cloud and AI	Improving Quality
134		Outcomes Through Health
		IT
	How Data and Analytics Can Improve CV Quality and	Improving Quality
135	Outcomes	Outcomes Through Health
	Outcomes	IT
136	Risk Management Framework for DoD Medical Devices	Privacy, Security &
130	RISK Management Framework for Dob Medical Devices	Cybersecurity
137	Burden Reduction	Public Policy
138	Patients As Partners: Embracing Patient-Driven Design	Human Factors, User
130	and Innovation	Experience and Design
130	10 Challenges in Managing Medical Device Cybersecurity	Privacy, Security &
139		Cybersecurity
4.40	A New Era: The CMO's Role at the Healthcare	Consumer & Patient
140	Consumerism Table	Engagement
141	Managing Machine Learning: Insights and Strategy	Data Analytics/ Clinical and

ID	タイトル	トピック分類
		Business Intelligence
142	Fall Bussianian and Fina Basantananha	Connected Health and
142	Fall Prevention and Fire Departments	Telehealth
1.42		Connected Health and
143	The EHR App Store Is Open – What Is on the Shelf?	Telehealth
144	About HIMSS: An Orientation to Our Organization	(None)
		Innovation,
145	Blockchain 101 for Healthcare	Entrepreneurship and
		Venture Investment
		Process Improvement,
146	Implementing Work-from-Home in the Revenue Cycle	Workflow, Change
		Management
		Process Improvement,
147	A Hybrid Approach to the Use of Agile in Health IT	Workflow, Change
		Management
		Health Information
148	OHI: Healthcare Interoperability at the Olympic Games	Exchange, Interoperability
		& Data Integration
149	A Multi-Pronged Approach to Improve Provider	Clinical Informatics &
	Satisfaction	Clinician Engagement
150	Clinical and Operational Excellence at the Cleveland	Data Analytics/ Clinical and
	Clinic	Business Intelligence
		Improving Quality
151	The Use of Blockchain to Improve Quality Outcomes	Outcomes Through Health
		IT
152	Connected Care: VA, Virtual Health and the Patient	Connected Health and
	Experience	Telehealth
153	Advanced Alternative Payment Models	EHRs
154	Shared Governance and Analytics Framework Improves	Leadership, Governance,
	Quality	Strategic Planning
155	Modeling Factors Associated with Healthcare Data	Privacy, Security &
	Breaches	Cybersecurity
156	Digital Transformation Across the Healthcare Ecosystem	Consumer & Patient
156	Digital Transformation Across the Healthcare Ecosystem	Engagement

ID	タイトル	トピック分類
1 [7	From Big Data to Big Knowledge: Optimizing Medication	Data Analytics/ Clinical and
157	Management	Business Intelligence
158	In Indiana Carrieria I Indiana	Connected Health and
	IoT and Wayfinding: Optimizing Healthcare	Telehealth
	College Colleg	Compliance, Risk
159	Equipping Health Technology Buyers and Sellers for	Management, and Program
	Potential Increased U.S. Governmental Scrutiny	Integrity
	Describe and the FUD. Dreeses Improvement Three of	Compliance, Risk
160	Research and the EHR: Process Improvement Through	Management, and Program
	Integration	Integrity
161	Tough Girl on the Net - Connected Health: A Patient	Consumer & Patient
101	Narrative	Engagement
	Dury in Through Opt in Charad Comings Francount	Process Improvement,
162	Buy-in Through Opt-in: Shared Services Engagement	Workflow, Change
	Strategies	Management
163	Putting Patients First by Reducing Administrative Tasks	Leadership, Governance,
103	Putting Patients First by Reducing Administrative Tasks	Strategic Planning
		Health Information
164	Leveraging HIE for Disaster Preparedness and Response	Exchange, Interoperability
		& Data Integration
	A New Kind of Village: Combatting Loneliness in Older	Social, Psychosocial,
165	Adults	Behavior Determinants
	Addies	Health
166	Gaining Time Back with Your Privacy and Security	Privacy, Security &
	Program	Cybersecurity
167	One Size Doesn't Fit All: Local Public Health Informatics	Population Health
	Perspectives	
168	Building a Population Health Strategy That Physicians	Population Health
	Love	
	Lessons Learned: Transformation Across Large	Process Improvement,
169	Healthcare Communities	Workflow, Change
		Management
170	A Measurement to Support the Health IT Regional	Leadership, Governance,
	Strategy	Strategic Planning
171	Securing Medication Use Analytics and Surveillance in	Privacy, Security &

ID	タイトル	トピック分類
	the Cloud	Cybersecurity
172	Leverage Data to Improve Patient Engagement and	Consumer & Patient
	Growth	Engagement
172	Visualizing the Patient Experience Using an Agile	Data Analytics/ Clinical and
173	Framework	Business Intelligence
	The Convergence of Healthcare's Emerging Tech	Health Information
174	The Convergence of Healthcare's Emerging Tech	Exchange, Interoperability
	Alphabet Soup with Blockchain	& Data Integration
175	Journey from the Basement: Data Management Within	HIT Infrastructure &
1/3	Colocation	Standards
176	Innovation Pitch Competitions…Learn from the Winners	(None)
177	Using Market Data to Move the Needle on Performance	Data Analytics/ Clinical and
	Using Market Bata to Move the Needle of Ferrormance	Business Intelligence
178	HIMSS Annual Business Meeting	(None)
179	Clinical Process Improvement for Scalable Quality	Leadership, Governance,
1/9	Governance	Strategic Planning
180	Creating Value via Analytics and AI-Driven Interactive	Clinical Informatics &
100	Radiology Reports	Clinician Engagement
181	The Power of Health IT – Predict, Prevent, Innovate	Connected Health and
101	The Fower of Fredict 11 Fredict, Frederic, Imovate	Telehealth
		Improving Quality
182	Improving Quality of Care in Anesthesiology	Outcomes Through Health
		IT
183	Chief Experience Officer: New Leader Driving Innovation	Culture of Care & Care
	to Transform Healthcare	Coordination
	Automate Consent to Comply with a New IQR Quality	Compliance, Risk
184	Measure	Management, and Program
		Integrity
185	Disrupt Advocacy: Put What You Know to Work for Patients	Public Policy
		Privacy, Security &
186	Exploring the Darknets	Cybersecurity
		Consumer & Patient
187	Create a Frictionless Healthcare Payments Experience	Engagement

ID	タイトル	トピック分類
188	Clinical and Operational Accountability in a Large IDN	Data Analytics/ Clinical and Business Intelligence
189	Chat with a Doctor: On-Demand, Asynchronous	Connected Health and
	Physician Advice	Telehealth
190	Digital Command Center for EHR Implementation	HIT Infrastructure &
190	Digital Command Center for Enk Implementation	Standards
191	The Cloud Through the Eyes of a Community Health	HIT Infrastructure &
191	Center CIO	Standards
	Fueling an Innovation Engine to Deliver Alternative	Innovation,
192	Payment Models	Entrepreneurship and
	r dyment Plodeis	Venture Investment
	Embedding IT Experts to Solve Complex Care	Process Improvement,
194	Challenges	Workflow, Change
	Challenges	Management
195	Designing From the Inside Out: Taking a Strategic	Culture of Care & Care
193	Approach	Coordination
	Using Data for Evidence Based Decision-Making: A Davies Story	Improving Quality
196		Outcomes Through Health
	Davies Story	IT
197	Integrating Evidence-Based Decision Tools Within an	Clinical Informatics &
137	EHR	Clinician Engagement
198	Push Not Pull: Using Data Science to Improve OR	Data Analytics/ Clinical and
	Operations	Business Intelligence
	A National Repository of Widely Shareable, Computable	Improving Quality
199	CDS	Outcomes Through Health
	- CD3	IT
	Standards and Interoperability – DoD/VA Health Information Exchange	Improving Quality
200		Outcomes Through Health
	Thermalon Exchange	IT
201	ONC Policy and Technology Update	Public Policy
202	Strategic Portfolio Management: Governing the	Leadership, Governance,
202	Ungoverned	Strategic Planning
203	Let's Get Real: Creating a Practical Data Security	Privacy, Security &
203	Program	Cybersecurity
204	Run, Run, Jump: The Right Way to Embrace Startup	Innovation,

ID	タイトル	トピック分類
	Innovation	Entrepreneurship and
		Venture Investment
205	Standardizing Clinical Communications Improves Patient	Culture of Care & Care
205	Care	Coordination
	Tanananiana Danasahahian Caura in Dadiahaina dhanasah	Improving Quality
206	Improving Preventative Care in Pediatrics through	Outcomes Through Health
	Health and Technology: A Davies Story	IT
207	Doint of Caro Dianlay of Dolative Cost Information	Clinical Informatics &
207	Point-of-Care Display of Relative Cost Information	Clinician Engagement
	January Dationt Health Thursday Deal Time ADT	Improving Quality
209	Improve Patient Health Through Real-Time ADT	Outcomes Through Health
	Integration	IT
	MUC Ocicid Bosiston Bosonii da Harlandia Harlandia	Improving Quality
210	MHS Opioid Registry: Promoting the Learning Health	Outcomes Through Health
	System	IT
244	Partnering to Propel Interoperability and Improve	Dublic Delieu
211	Veteran Care	Public Policy
212	Dovoloning an Enterprise Imaging Strategy	Leadership, Governance,
212	Developing an Enterprise Imaging Strategy	Strategic Planning
213	Identity and Access Management Challenges in	Privacy, Security &
213	Academic Medicine	Cybersecurity
214	Transitioning to Value-Based Care? Chatbot May Help	Consumer & Patient
217	Transitioning to value based care: enable may help	Engagement
215	By the Numbers: Leveraging Your Clinical Analytics Data	Data Analytics/ Clinical and
215	by the Numbers. Leveraging four Clinical Analytics Data	Business Intelligence
216	Smartphones for Caregivers = Better Patient	Connected Health and
210	Experiences	Telehealth
	Managing eCQM Reporting Through a System EHR	Compliance, Risk
217	Transition	Management, and Program
	TI ATTSILIOTT	Integrity
210	Workflow Informed Decision Support Tools for Nursing	Human Factors, User
218	Homes	Experience and Design
210	Caring for Astronauts in Space: The Role of Telemedicine	Connected Health and
219	at NASA	Telehealth
220	Creating a Culture of Innovation: Best Practices from the	Innovation,

ID	タイトル	トピック分類
	Battlefields	Entrepreneurship and
		Venture Investment
		Social, Psychosocial,
221	Standardizing Collection of Social Determinants Data	Behavior Determinants
		Health
		Improving Quality
222	Innovative Use of Technology in the Home to Improve	Outcomes Through Health
	Diagnosis and Care: A Davies Story	IT
222	Classification Defends Committee in the	Clinical Informatics &
223	Closed-Loop Referral Communications	Clinician Engagement
004	Sustaining Barcoding for Safety in IV Infusion	B .:
224	Administration	Patient Safety and Health IT
		Improving Quality
225	Implementation of a Clinical Trial Matching System	Outcomes Through Health
		IT
		Health Information
226	HIEs to the Rescue! From Harvey and Flint to Cyber Response	Exchange, Interoperability
		& Data Integration
	Innovation in the Medicald Enterprises A Ctate and	Innovation,
227	Innovation in the Medicaid Enterprise: A State and	Entrepreneurship and
	Federal Priority Partnership	Venture Investment
220	Benchmarking and Iterative Usability Testing: A Case	Human Factors, User
228	Study	Experience and Design
229	Cyborgogyrity, Ashioving Provailing Practices	Privacy, Security &
229	Cybersecurity: Achieving Prevailing Practices	Cybersecurity
220	Harvesting Wearable Device Data	Consumer & Patient
230	Harvesting Wearable Device Data	Engagement
231	AI-Powered Early Warning System to Improve Patient	Data Analytics/ Clinical and
231	Safety	Business Intelligence
222	Home Care Success with Virtual Care and Remote	Connected Health and
232	Monitoring	Telehealth
224	Creating Healthy Incentives to Improve Integrated	(Nono)
234	Care: Lessons Learned from Around the World	(None)
226	Transforming IT. The Journay to Clinical Innovation	Process Improvement,
236	Transforming IT: The Journey to Clinical Innovation	Workflow, Change

ID	タイトル	トピック分類
		Management
238	Contribution of Contribution A Contribution	Health Information
	Sustainability and Social Security Disability: A Case	Exchange, Interoperability
	Study	& Data Integration
220	CDS in the Cloud: Deploying a CDC Guideline for	Clinical Informatics &
239	National Use	Clinician Engagement
240	Survive Ransomware and Thrive in Today's Digital	Privacy, Security &
240	Environment	Cybersecurity
	Why Am I Taking This Drug? Incorporating Indications in	Improving Quality
241	CPOE	Outcomes Through Health
	CFOL	IT
242	Population Health Information Exchange Over a Digital	Population Health
	Bridge	
243	Quality Payment Program Developer Tools & EHRs Town	EHRs
	Hall	
244	Insight on Substance Abuse Treatment for Better	Data Analytics/ Clinical and
	Outcomes	Business Intelligence
245	Improving RFID Security in a Healthcare Environment	Privacy, Security &
	,	Cybersecurity
	Balancing Leading Performance Indicators to Improve	Process Improvement,
246	Patient Access	Workflow, Change
		Management
247	Healthcare Transformation Led and Enabled by	HIT Infrastructure &
	Disruptive Cloud Technology	Standards
248	Create and Scale a Joint Telehealth Support Model with	Connected Health and
	Vendors	Telehealth
249	Breaking Down Barriers with Master Data Management	HIT Infrastructure &
	and Data Governance	Standards
250	Navigating the Gray Areas: Outpatient/Inpatient	EHRs
	Hybrids	
251	Democratizing Patient Data: A Story of Patient	Consumer & Patient
	Empowerment	Engagement
		Process Improvement,
252	Out-of-Control Order Sets? Get Control	Workflow, Change
		Management

ID	タイトル	トピック分類
253	Telehealth on the Hill: How Policy Is Ushering Change	Public Policy
254	*	Health Information
	Identifying Frequent ED Users in HIE Impacts Case	Exchange, Interoperability
	Management	& Data Integration
255	Physician Awareness, Preparedness, and Perception of	Privacy, Security &
255	HIPAA and Cybersecurity	Cybersecurity
256	Achieving Success with 2018 EHR Meaningful Use	EHRs
230	Criteria	LIII/3
	Creating an EHR-Based Antimicrobial Stewardship	Improving Quality
257	Program	Outcomes Through Health
	- 1 - 0 g · d · i	IT
258	Pharmacogenomics Within the EHR	Precision
	Thatmacogenomics Within the Emil	Medicine/Genomics
259	New Medicare Card Project	Privacy, Security &
		Cybersecurity
260	From Implementation to Optimization: Moving Beyond Operations	EHRs
261	Next-Gen Security Technologies for Healthcare	Privacy, Security &
201	Authentication	Cybersecurity
262	Personalizing the Patient Experience Through	Consumer & Patient
202	Intelligence	Engagement
263	Finding the ROI of AI	Data Analytics/ Clinical and
203	Triding the KOT of AT	Business Intelligence
264	Remote Patient Monitoring: A Mississippi Success Story	Connected Health and
	remote radent normaling. A mississippi success story	Telehealth
265	Scalable Storage and Disaster Recovery Infrastructure	HIT Infrastructure &
	for Medical Images	Standards
	Radical Care Transformation with Social Determinant	Social, Psychosocial,
266	Data	Behavior Determinants
		Health
	Non-Emergency Medical Transportation: Better Health	Process Improvement,
267	Outcomes with Ridesharing	Workflow, Change
		Management
268	Use of RTLS to Support a Model of Patient-Centered Care	Process Improvement,
200	222 5 20 to support a model of rational content of our	Workflow, Change

ID	タイトル	トピック分類
		Management
	A FUID Franklad Francisco Continuity To Consolina	Health Information
269	A FHIR-Enabled Ecosystem for Health Information	Exchange, Interoperability
	Sharing	& Data Integration
270	Clinical Optimization: Partnership, Success and Lessons	Clinical Informatics &
270	Learned	Clinician Engagement
274	Social Determinants and AI – A Recipe for Truly	Consumer & Patient
271	Personalized Healthcare	Engagement
	Double of the Medical Device Convibuted Deticat	Compliance, Risk
272	Partnering for Medical Device Security and Patient	Management, and Program
	Safety	Integrity
273	Fast and Furious: eRX/EPCS Implementation and	Pharmacy Standards &
2/3	Optimization	Technology
	Social Health Data Evehange Englishtee Chronic Disease	Social, Psychosocial,
274	Social-Health Data Exchange Facilitates Chronic Disease	Behavior Determinants
	Care	Health
275	Machine Learning and Big Data to Drive Patient	Consumer & Patient
2/3	Engagement and Better Health Outcomes	Engagement
276	Incident Response Lessons from the Front Lines	Privacy, Security &
270	Theideric Response Lessons from the Front Lines	Cybersecurity
277	Building and Maintaining a Modern Provider Directory	Consumer & Patient
	Building and Plaintaining a Ploatin Provider Directory	Engagement
278	How Analytics Can Create a Culture of Continuous	Data Analytics/ Clinical and
270	Improvement	Business Intelligence
279	Bricks and Mortar of a Telehealth Initiative	Connected Health and
	Bricks and Piortal of a Teleficated Initiative	Telehealth
	Physician Engagement As a Catalyst for Clinical and	Process Improvement,
280	Financial Improvement	Workflow, Change
		Management
281		Emerging Payment Models
	Physician Suicide and Clinician Engagement Tools	for Value-Based Care
	,	Pharmacy Standards &
		Technology
282	Achieving HIMSS Stage 7: Realizing the Benefits of Your	EHRs
202	EHR	

ID	タイトル	トピック分類
202	Boston Strong: Lessons Learned from the Boston	Leadership, Governance,
283	Marathon Bombing	Strategic Planning
		Process Improvement,
285	Improving Provider Accuracy in the EHR	Workflow, Change
		Management
306	From the Battlefield, to the Bedside, and Beyond: One	Culture of Care & Care
286	Veteran's Journey	Coordination
		Health Information
287	"SAFR" Care Coordination Between Paramedics and ED	Exchange, Interoperability
		& Data Integration
200	Stanford Children's Outside Image Management	Clinical Informatics &
288	Journey	Clinician Engagement
289	How Chief Digital Officers Can Boost Digital	Leadership, Governance,
209	Transformation	Strategic Planning
		Improving Quality
290	Turning Clinical Data Into Effective Action: A Case Study	Outcomes Through Health
		IT
291	Harnessing EHR Data for Local Population Health	Population Health
291	Monitoring	
292	Getting to Yes: Exchanging Information to Better	Culture of Care & Care
	Coordinate Patient Care	Coordination
293	Ethical Data Use as a Driver of Clinical and Business	Data Analytics/ Clinical and
	Intelligence	Business Intelligence
294	Cybersecurity Risk Management at a National	Privacy, Security &
	Post-Acute Care	Cybersecurity
		Process Improvement,
295	Intelligent Bed-Flow and Return on Investment	Workflow, Change
		Management
296	Interoperability in Practice: Pharmacist eCare Plan	Pharmacy Standards &
	Theroperability in Fractice. Frantiacist cearer fair	Technology
		Health Information
297	Clinical Data Registries: Solving for Interoperability	Exchange, Interoperability
		& Data Integration
298	Zeroing in on the Patient to Reduce Alert Fatigue	Clinical Informatics &
230	2010 mg m on the ration to Neduce Alert ratigue	Clinician Engagement

299 QPP/MIPS Success with Longitudinal Quality Measurement for Value-Based Care 300 User-Centered Design of a Mobile ePrescription Service Create a Data-Driven Process to Manage the Quadruple Aim 301 How Useful Are Discharge Documents for Care Coordination? Compliance, Risk 303 Whistleblowing Under the False Claims Act Management, and Progra Integrity Secure from the Start: Why Medical IoT Needs Protection Now Perspectives on Leadership and Healthcare Advocacy Privacy, Security & Cybersecurity Leadership, Governance, Strategic Planning
Measurement for Value-Based Care 1300 User-Centered Design of a Mobile ePrescription Service Experience and Design 1301 Create a Data-Driven Process to Manage the Quadruple Aim 1302 How Useful Are Discharge Documents for Care Coordination? 1303 Whistleblowing Under the False Claims Act Management, and Program Integrity 1304 Secure from the Start: Why Medical IoT Needs Protection Now 1305 Perspectives on Leadership and Healthcare Advocacy 1306 Process Care Human Factors, User Experience and Design 1307 Country Culture of Care & Care Coordination 1308 Culture of Care & Care Coordination 1309 Coordination Compliance, Risk Management, and Program Integrity 1309 Privacy, Security & Cybersecurity 1309 Leadership, Governance, Coordination Compliance Advocacy
User-Centered Design of a Mobile ePrescription Service Create a Data-Driven Process to Manage the Quadruple Aim How Useful Are Discharge Documents for Care Coordination? Coordination? Compliance, Risk Management, and Program Integrity Secure from the Start: Why Medical IoT Needs Protection Now Perspectives on Leadership and Healthcare Advocacy Experience and Design Population Health Culture of Care & Care Coordination Compliance, Risk Management, and Program Integrity Privacy, Security & Cybersecurity Leadership, Governance,
Create a Data-Driven Process to Manage the Quadruple Aim How Useful Are Discharge Documents for Care Coordination? Coordination? Compliance, Risk Management, and Programs Integrity Secure from the Start: Why Medical IoT Needs Protection Now Perspectives on Leadership and Healthcare Advocacy Experience and Design Population Health Culture of Care & Care Coordination Compliance, Risk Management, and Programs Integrity Privacy, Security & Cybersecurity Leadership, Governance,
Aim How Useful Are Discharge Documents for Care Coordination? Coordination Compliance, Risk Whistleblowing Under the False Claims Act Management, and Progra Integrity Secure from the Start: Why Medical IoT Needs Protection Now Perspectives on Leadership and Healthcare Advocacy Population Health Culture of Care & Care Coordination Compliance, Risk Management, and Progra Integrity Privacy, Security & Cybersecurity Leadership, Governance,
Coordination? Coordination Compliance, Risk Management, and Progra Integrity Secure from the Start: Why Medical IoT Needs Protection Now Perspectives on Leadership and Healthcare Advocacy Coordination Compliance, Risk Management, and Progra Integrity Privacy, Security & Cybersecurity Leadership, Governance,
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303 Whistleblowing Under the False Claims Act Management, and Progra Integrity Secure from the Start: Why Medical IoT Needs Protection Now Cybersecurity Perspectives on Leadership and Healthcare Advocacy Management, and Progra Integrity Privacy, Security & Cybersecurity Leadership, Governance,
304 Secure from the Start: Why Medical IoT Needs Privacy, Security & Cybersecurity 305 Perspectives on Leadership and Healthcare Advocacy
Secure from the Start: Why Medical IoT Needs Protection Now Cybersecurity Leadership, Governance, Perspectives on Leadership and Healthcare Advocacy
304 Protection Now Cybersecurity 305 Perspectives on Leadership and Healthcare Advocacy Leadership, Governance,
Protection Now Cybersecurity Leadership, Governance, Perspectives on Leadership and Healthcare Advocacy
305 Perspectives on Leadership and Healthcare Advocacy
400 The Need for a Nationwide Patient-Matching Solution Patient Safety and Health
Emerging Payment Mode
Enabling a Stronger, More Skilled Global eHealth for Value-Based Care
401 Workforce Pharmacy Standards &
Technology
Changing the Channel: Transforming Interactive Patient Consumer & Patient
402 Entertainment Engagement
Connected Health and
403 Health Care Without Walls Learning Session Telehealth
Innovation,
Intrapreneurship and the Approach to Innovation from Entrepreneurship and
Within Venture Investment
Clinical Informatics &
405 CMIO Roundtable Clinician Engagement
Empowering Patients: Rural Healthcare and Chronic Human Factors, User
406 Conditions Experience and Design
Process Improvement,
Transforming Logical Access Control for a Hospital Workflow, Change
Network Management

ID	タイトル	トピック分類
409	Reducing Physician Burnout: Mitigating Impact of the EHR	EHRs
410	Establishing a Healthcare Data Quality Assurance Initiative	Leadership, Governance, Strategic Planning
411	Nursing Informatics Roundtable	Clinical Informatics & Clinician Engagement
412	Improving Febrile Infant Care Using Mobile Technology	Clinical Informatics & Clinician Engagement
413	How IT Leaders Can Reduce Reporting Burden, Boost Incentives	Compliance, Risk Management, and Program Integrity
414	Five Ways Real-Time Notifications Can Improve Population Health	Health Information Exchange, Interoperability & Data Integration
415	Creating Strategic Alignment for a Value-Based World	Emerging Payment Models for Value-Based Care
416	Building Capacity Through Diversity in Health IT Education	Emerging Payment Models for Value-Based Care Pharmacy Standards & Technology
418	Improving Health IT Through Use of NLP/AI in Documentation	Patient Safety and Health IT
419	Build a Next-Gen IT Team to Embrace Digital Disruption	Leadership, Governance, Strategic Planning
284A	It Takes a Community - Delivering 21st Century Coordinated Care for Those In and Out of Uniform	Culture of Care & Care Coordination
284B	Innovative Leadership, Robotic Technology and the Future of Healthcare	Innovation, Entrepreneurship and Venture Investment
А	Strategic Process Improvement: Applying Lean & Six-Sigma Tools and Techniques to Achieve Organizational Excellence	Process Improvement, Workflow, Change Management
AC18-A BABE	Meeting the Challenges of Digital Medicine Breakfast	Connected Health and Telehealth
AC18-A	Applied AI & Process Automation Workshop	Connected Health and

ID	タイトル	トピック分類
RTINT1		Telehealth
AC18-D	Well-area and O area in a	Connected Health and
TX1	Welcome and Overview	Telehealth
AC18-D	Ipsos Report Briefing: Key Insights from Study of	Connected Health and
TX2	Patients' Use of Digital Therapeutics	Telehealth
AC18-D	Colorina Accordance What Day and O Dura ideas Need	Connected Health and
TX3	Gaining Acceptance: What Payers & Providers Need	Telehealth
AC18-D	Cathina Danasa an Danasa	Connected Health and
TX4	Getting Payers on Board	Telehealth
AC18-D	F: . Q	Connected Health and
TX5	Fireside Chat: Pharma Perspective on DTx	Telehealth
AC18-D	G	Connected Health and
TX6	Status Updates: VR & Voice	Telehealth
AC18-D	Industry Veterans Discuss: Clinical Validation of Digital	Connected Health and
TX7	Therapeutics	Telehealth
AC18-D	Attendee Feedback: Have Your Say	Connected Health and
TX8		Telehealth
AC18-D	Fill's Tabana San Barra	Connected Health and
TX9	Fitbit Interactive Demo	Telehealth
AC10 IF		Innovation,
AC18-IE	Emerging Healthcare Technologies Forum	Entrepreneurship and
EE		Venture Investment
AC18-IL	Town Calledon Control of the Control	Connected Health and
P18	Innovation Collaborative Update	Telehealth
10001		Connected Health and
ACC01	Machine Learning & AI For Healthcare	Telehealth
AH1	About HIMSS: An Orientation to Our Organization	(None)
ASPC01	AsiaPac Summit	(None)
		Process Improvement,
В	Communication Skills For Project Success: What Every	Workflow, Change
	Project Manager Should Know	Management
BCEX	Blockchain Forum Exhibit Floor Tour	(None)
5	Opening Keynote: Patient Engagement: What Should it	Emerging Payment Models
BH1	Look Like in an APM Universe?	for Value-Based Care

ID	タイトル	トピック分類
BH2	Key Issues in Choosing and Developing Your Alternative	Emerging Payment Models
	Payment Model	for Value-Based Care
BH3	Navigating the Briar Patch: Addressing Regulatory	Emerging Payment Models
	Compliance in an Alternative Payment World	for Value-Based Care
BH4	Shared Goals: Creating Alignment between Hospital	Emerging Payment Models
	Systems and Independent Physicians	for Value-Based Care
BH5	Information Integration: Leveraging Data Analytics to	Emerging Payment Models
	Mitigate Actuarial Challenges	for Value-Based Care
BH6	Closing Keynote: Supply Chain Economics: A Remedy	Emerging Payment Models
	for What Ails You	for Value-Based Care
CCC1	The Need for Trended Data	Culture of Care & Care
		Coordination
CCC2	Creating a Culture of Shared Decision-making	Culture of Care & Care
		Coordination
CCC3	Bridging Gaps: Interfaces and applications for shared	Culture of Care & Care
	decision-making	Coordination
CCCA	Collaborative Platforms for Cooperative Decision-making	Culture of Care & Care
CCC4		Coordination
CCC5	New Roles - New Skills: Building a Workforce For the	Culture of Care & Care
	New World	Coordination
CCC6	Closing Keynote - Payment Reform to Support a New	Culture of Care & Care
	Culture	Coordination
CHSM01	China Summit	(None)
CIO1	Opening Keynote	Leadership, Governance,
C1O1		Strategic Planning
CIO2	Mid-Morning Keynote	Leadership, Governance,
C102		Strategic Planning
CIO3	Mid-Afternoon Keynote	Leadership, Governance,
		Strategic Planning
CIO4	Closing Keynote	Leadership, Governance,
		Strategic Planning
CIOG	CHIME/HIMSS CIO Forum Golf Outing at the Bali Hai Golf	Leadership, Governance,
	Club	Strategic Planning
CLO01	Cloud Computing Forum	Connected Health and

ID	タイトル	トピック分類
		Telehealth
COM1	Opening Keynote: The Compliance Landscape: Friend or Foe?	Compliance, Risk
		Management, and Program
		Integrity
COM2	Cutting Edge Health Technology Compliance Issues: The Double-Edged Sword	Compliance, Risk
		Management, and Program
		Integrity
COM3	The Trap of Reporting Quality	Compliance, Risk
		Management, and Program
		Integrity
COM4	The "Stark" Reality of Managing Compliance	Compliance, Risk
		Management, and Program
		Integrity
COM5	How to Best Manage Cybersecurity Risks	Compliance, Risk
		Management, and Program
		Integrity
	Closing Keynote: Completing the Journey through the World of Compliance	Compliance, Risk
COM6		Management, and Program
		Integrity
CSC1	HIMSS Welcome and Introduction (AM Session)	Emerging Payment Models
		for Value-Based Care
CSC2	Shape Up Your Resume and Solve Your Interview	Emerging Payment Models
CSC2	Mistakes	for Value-Based Care
CSC3	Creating Your Personal Brand	Emerging Payment Models
		for Value-Based Care
CSC4	HIMSS Welcome and Introduction (PM Session)	Emerging Payment Models
		for Value-Based Care
CSC5	What to Expect When Looking for a Job	Emerging Payment Models
		for Value-Based Care
CSC6	Professional Networking and Mentoring	Emerging Payment Models
		for Value-Based Care
CSC7	Advice for the Aspiring Female Executive	Emerging Payment Models
		for Value-Based Care
CSCO	HIMSS18 Career Fair	Emerging Payment Models
		for Value-Based Care

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C)/D1	How to be an Effective Cybersecurity Leader in	Privacy, Security &
CYB1	Healthcare	Cybersecurity
0)/53	Catting Dandy for the Next Intermedianal Colors attends	Privacy, Security &
CYB2	Getting Ready for the Next International Cyber-attack	Cybersecurity
CVD2	The Francis Associate of Calcareau iii.	Privacy, Security &
CYB3	The Economic Aspects of Cybersecurity	Cybersecurity
CYB4	The Intersection of Patient Safety and Medical Device	Privacy, Security &
C104	Cybersecurity	Cybersecurity
CYB5	Evolving Healthcare Cybersecurity Programs with	Privacy, Security &
C103	Lessons Learned	Cybersecurity
CYB6	Healthears Cubarcocurity, What's Novt	Privacy, Security &
CIBO	Healthcare Cybersecurity: What's Next	Cybersecurity
END18	NEHI presentation on Health Care Without Walls	Population Health
	ADC Mostrum How Doos Your Organization Hea Data to	Improving Quality
END19	APG Meetup: How Does Your Organization Use Data to	Outcomes Through Health
	Improve Health Outcomes?	IT
END20	#healthITchicks Meetup	(None)
FT1	First Timer's Conference Orientation	(None)
FT2	First Timer's Conference Orientation	(None)
HX01	HV260 Everytive Engagement Luncheen	Leadership, Governance,
HV01	HX360 Executive Engagement Luncheon	Strategic Planning
HV02	HV260 Everytive Deception	Leadership, Governance,
HX02	HX360 Executive Reception	Strategic Planning
HX03	HX360 Executive Engagement Luncheon	Leadership, Governance,
плоз	nasou executive engagement cuntrieon	Strategic Planning
HX04	HX360 Partner Event - National Health IT Collaborative:	Leadership, Governance,
ΠΛ υ 4	Leveraging Health IT to Address Health Disparities	Strategic Planning
HX05	HX360 Partner Event - Accountable Care Learning	Leadership, Governance,
ΠΛU3	Collaborative Plenary	Strategic Planning
HX06	AVIA Innovator Executive Program - Digital Disruption:	Leadership, Governance,
11/00	A "No Regrets" response	Strategic Planning
HX360	HX360 Partner Event - Leavitt Partners Executive	Leadership, Governance,
ПАЗВО	Political Briefing	Strategic Planning
ILP01	Welcome Remarks	Innovation,

ID	タイトル	トピック分類
		Entrepreneurship and
		Venture Investment
	Keynote: Connected Health and the Human Element:	Innovation,
ILP02		Entrepreneurship and
	Creating a Better Health System in The New Mobile Age	Venture Investment
		Innovation,
ILP03	Newsmaker Interview: Finding Your Voice in Healthcare	Entrepreneurship and
		Venture Investment
	Connected Diabetes Care: Envisioning a GTM Strategy to	Innovation,
ILP04	Eradicate T2D	Entrepreneurship and
	Eradicate 12D	Venture Investment
ILP05	Making Way for Connected Health	Connected Health and
1LPU3	Making way for Connected Health	Telehealth
	Spotlight: Discovering Human-Contored Possibilities	Innovation,
ILP06	Spotlight: Discovering Human-Centered Possibilities	Entrepreneurship and
	thru Engagement Blueprinting	Venture Investment
		Innovation,
ILP07	Advancing Digital Health with Behavior Science	Entrepreneurship and
		Venture Investment
	Incentives, Wellness & the Financials of Workplace	Innovation,
ILP08	Connected Health	Entrepreneurship and
	Connected freacti	Venture Investment
	Innovating Innovation: Leveraging Your Community for	Innovation,
ILP09	Successful Innovation	Entrepreneurship and
	Successful Innovation	Venture Investment
	Newsmaker Interview: Investing in a Better Future for	Innovation,
ILP10	Medicine with Connected Care	Entrepreneurship and
	Predictive with connected care	Venture Investment
		Innovation,
ILP11	PGHD On the Rise	Entrepreneurship and
		Venture Investment
ILP12	Newsmaker Interview: Proteus Digital Health and the	Connected Health and
	Future of Digital Therapeutics (DTx)	Telehealth
ILP13	Transforming Pharma for the Digital Age	Innovation,
12, 13	Transforming Filatina for the Digital Age	Entrepreneurship and

ID	タイトル	トピック分類
		Venture Investment
		Innovation,
ILP14	Partnering with HHS for Innovation in Connected Health	Entrepreneurship and
		Venture Investment
		Innovation,
ILP15	CIO/CTO Leadership Perspective	Entrepreneurship and
		Venture Investment
		Health Information
INT1	Opening Keynote: Leverage Points to Advance	Exchange, Interoperability
	Interoperability	& Data Integration
		Health Information
INT2	How HIE's are Making a Difference for Complex	Exchange, Interoperability
	Populations Today	& Data Integration
		Health Information
INT3	Enabling Successful Sharing of Behavioral Health	Exchange, Interoperability
	through HIE	& Data Integration
		Health Information
INT4	Integrating Data Sources to Support Care Delivery	Exchange, Interoperability
		& Data Integration
		Health Information
INT5	Creative Solutions to Common Problems	Exchange, Interoperability
		& Data Integration
	Closing Koyneto, A Creat Lean Ferward or	Health Information
INT6	Closing Keynote: A Great Leap Forward or	Exchange, Interoperability
	Incrementalism?	& Data Integration
INTCON	International Conference	(None)
01	The haddra conference	(None)
	Opening Keynote: How Innovation will tackle	Innovation,
INV1	Opening Keynote: How Innovation will tackle tomorrow's challenges	Entrepreneurship and
		Venture Investment
INV2	Creating a Culture of Innovation an Innovation Lab Perspective	Innovation,
		Entrepreneurship and
		Venture Investment
INV3	Innovation at the Edges: How Innovation Happens with	Innovation,
	Sparse Resources	Entrepreneurship and

ID	タイトル	トピック分類
		Venture Investment
		Innovation,
INV4	Tribal Leadership: Leading Culture and Innovation	Entrepreneurship and
		Venture Investment
		Innovation,
INV5	Design Thinking Your Way to Meaningful Innovation	Entrepreneurship and
		Venture Investment
		Innovation,
INV6	Closing Keynote: Health Happens Everywhere	Entrepreneurship and
		Venture Investment
1.71	Opening Keynote: Information and Technology in an	Culture of Care & Care
LT1	Aging World	Coordination
LTO	Healthcare Information and Systems Management –	Culture of Care & Care
LT2	Analysis & Design	Coordination
I TO	Healthcare Information and Systems Management –	(None)
LT3	Selection, Implementation, Support, and Maintenance	(None)
LT4	Healthcare Information and Systems Management –	Culture of Care & Care
L14	Testing and Evaluation	Coordination
LT5	Healthcare Information and Systems Management –	Culture of Care & Care
LIS	Privacy and Security	Coordination
LT6	Closing Keynote: The LTPAC Information and	Culture of Care & Care
L10	Technology Champion	Coordination
		Innovation,
MKCN1	MarketConnect Live	Entrepreneurship and
		Venture Investment
MSE1	Breakfast and Check-In	(None)
MSE10	Closing Remarks and Boxed Lunch Served	(None)
MSE2	Welcome and Microsoft Executive Keynote	(None)
MSE3	Innovation Award Presentations	(None)
MSE4	Customer Success Story	(None)
MSE5	Virtual Health: TelaDoc and Customer Case Story	(None)
MCEG	Clinical/Operational Analytics: KenSci and Customer	(Nono)
MSE6	Case Story	(None)
MSE7	Break	(None)

ID	タイトル	トピック分類
MOEO	Healthcare NExT Session: Harnessing the Power of the	
MSE8	Cloud and AI to Make a Difference	(None)
MSE9	EPIC, Microsoft and Customer Success Story	(None)
NI1	Patient Care through Effective and Efficient Nursing	Clinical Informatics &
INII	Documentation	Clinician Engagement
NI2	Predictive Analytics and the Impact on Nursing Care	Clinical Informatics &
INIZ	Delivery	Clinician Engagement
NI3	Innovative Uses of Telehealth	Clinical Informatics &
1412	Innovative uses of Teleffealth	Clinician Engagement
NI4	Surviving a Cyber Attack from an Operational	Clinical Informatics &
1414	Perspective	Clinician Engagement
NI5	The Journey to Mobility	Clinical Informatics &
1113	The Journey to Hobility	Clinician Engagement
PAYF04	Luncheon: HIMSS18 Payer Forum - Invite Only	Emerging Payment Models
	Luncheon: Thrissio Payer Forum - Invice Only	for Value-Based Care
PCHSYM	Digital & Personal Connected Health	Connected Health and
P01	Digital & Fersonal Connected Fleater	Telehealth
PEES01	Patient Engagement & Experience Summit	Consumer & Patient
	Tutterie Engagement & Experience Summit	Engagement
		Improving Quality
PEIT1	Update from the National Coordinator for Health IT	Outcomes Through Health
		IT
PEIT2	Taming the EHR: Relieving Physician Administrative Burden	EHRs
DEITS	Drive in Artificial Intelligence to the Clinical Cetting	Precision
PEIT3	Bringing Artificial Intelligence to the Clinical Setting	Medicine/Genomics
PEIT4	Evolution of Informatics and HIT	Clinical Informatics &
L [] []	Evolution of Informatics and TIT	Clinician Engagement
PEIT5	Cybersecurity Challenges Facing Physicians	Privacy, Security &
	Cybersecurity Challenges racing rifysicians	Cybersecurity
PEIT5B	Cybersecurity Challenges Facing Physicians – Part II	Privacy, Security &
	Gybersecurity Chameriges rading riffysicians — rait II	Cybersecurity
PEIT6	Clinical Decision Support of the Future	Data Analytics/ Clinical and
1 1110	Carrical Decision Support of the Future	Business Intelligence

ID	タイトル	トピック分類
PEIT7	Unlocking the Power of Healthcare Data	Innovation,
		Entrepreneurship and
		Venture Investment
PH1	At the Crossroads of Volume and Value – You are Here	Population Health
PH2	One Medicine: Incorporating Population Health	Danielak'an Haalila
PIIZ	Principles and Best Practices into Clinical Workflow	Population Health
PH3	Making the Numbers Work	Population Health
PH4	Into the Looking Glass: New Perspectives on the	Population Health
F11 4	Complexities of Population Health	ropulation nealth
PH5	Improving Population Health One Person at a Time	Population Health
PH6	Beyond the Horizon: What's Next?	Population Health
PM1	Opening Keynote: Precision Medicine at the Inflection	Precision
1 1.11	Point	Medicine/Genomics
PM2	Preparing for the Journey Using the Tools of the	Precision
F 1·12	Trailblazers	Medicine/Genomics
PM3	Blazing the Precision Medicine Trail: Data	Precision
	Interoperability and Sharing Across the Ecosystem	Medicine/Genomics
PM4	Ctone Alana the Tunil to the Duscisian Medicine Commit	Precision
F141 4	Steps Along the Trail to the Precision Medicine Summit	Medicine/Genomics
PM5	Ethics in Precision Medicine: Still an Imprecise Balance	Precision
F1413	Luiles in Frecision Medicine. Juli an Imprecise balance	Medicine/Genomics
PM6	Closing Keynote: Going from the Trail to the Summit in	Precision
	Precision Medicine	Medicine/Genomics
RSC01	Revenue Cycle Solutions Summit	Emerging Payment Models
NSC01	Nevenue Cycle Solutions Summit	for Value-Based Care
SPOT03	HIMSS Population Health Management and Capabilities	Population Health
3F 0 1 0 3	Model: Bringing Clarity to your Population Health Efforts	i opulation nealth
SPOT04	Making an Impact on State Health Policy and an Eye on	Public Policy
Jr U1 U4	Indiana	i ablic Folicy
SPOT05	Discover the HIMSS Innovation Center – Your Home	Innovation,
	Away from HIMSS	Entrepreneurship and
	Away Itolii Tiirioo	Venture Investment
SPOT06	Meet the HIMSS Social Media Ambassadors	(None)
SPOT09	Our Journey to Putting Patients First	Consumer & Patient

ID	タイトル	トピック分類
		Engagement
CDCT1 C	Health Technology Alliance - Advancing the Safety and	Privacy, Security &
SPOT10	Security of Devices and Systems	Cybersecurity
	Customor Polationship Management (CDM) in	Health Information
SPOT11	Customer Relationship Management (CRM) in	Exchange, Interoperability
	Healthcare - Transforming the Experience of Healthcare	& Data Integration
	Blockchain in Obesity and Type II Diabetes Treatment,	Data Analytics/ Clinical and
SPOT12	Clinical Research Administration, and Value-Based	Business Intelligence
	Contracting	business intelligence
SPOT13	Cybersecurity, HIMSS, and You: What's Happening Now	Privacy, Security &
370113	and In The Future	Cybersecurity
	THE's Plug a then Dispole New Health Technology Hype	Innovation,
SPOT14	IHE's Plug-a-thon Dispels New Health Technology Hype vs Value	Entrepreneurship and
	vs value	Venture Investment
SPOT18	Engaging Through HIMSS Professional Development	(None)
3F0116	Opportunities	(None)
SPOT19	Enhancing Your Career Through HIMSS Certification	(None)
3PO119	Programs	(None)
	State of the Industry: Highlights from HIMSS North	Leadership, Governance,
SPOT2	America's Leadership & Workforce and Compensation	Strategic Planning
	Surveys	Strategic Flaming
SPOT21	State of Precision Medicine: Where it is Headed and How	Precision
3F0121	to Discern the Signal from the Noise	Medicine/Genomics
		Improving Quality
SPOT22	EMRAM Criteria Updates: What you need to know	Outcomes Through Health
		IT
SPOT23	Closing the Evidence Gap in Connected Health	Connected Health and
Jr U123	Closing the Evidence dap in Connected Realth	Telehealth
SPOT24	HIMSS International: the global approach	Connected Health and
JFU124	Titings Titernational. the global approach	Telehealth
SWED0	Swedish Education Session: Secure implementation of	
3WEDU	eHealth services and solutions. Next steps post Swedish	(None)
Τ	Tenders.	
\/C1	HIMSS VentureConnect Opening Reception	Innovation,
V C 1	VC1 HIMSS VentureConnect Opening Reception	Entrepreneurship and

ID	タイトル	トピック分類
		Venture Investment
		Innovation,
VC2	HIMSS VentureConnect Exclusive Investor Breakfast	Entrepreneurship and
		Venture Investment
		Innovation,
VC3	Health Tech Investment and Market Trends	Entrepreneurship and
		Venture Investment
		Innovation,
VC4	Investor Perspective: The Healthcare Ecosystem	Entrepreneurship and
		Venture Investment
		Innovation,
VC5	Series A Pitch Competition Presentations	Entrepreneurship and
		Venture Investment
		Innovation,
VC6	Building out the Human Capital Element of Startups	Entrepreneurship and
		Venture Investment
		Innovation,
VC7	An Address from HIMSS President & CEO	Entrepreneurship and
		Venture Investment
	Poflections on Paicing a Series A. An Incider	Innovation,
VC8	Reflections on Raising a Series A: An Insider Conversation	Entrepreneurship and
	Conversation	Venture Investment
	New Roles for Healthcare Organizations in Innovation	Innovation,
VC9	and Investment	Entrepreneurship and
	and investment	Venture Investment
		Innovation,
VC10	The Changing Role of the Health Tech Accelerator	Entrepreneurship and
		Venture Investment
		Innovation,
VC11	Keys to Investing in the Global Health Tech Market	Entrepreneurship and
		Venture Investment
VC12	Announcement of Series A Pitch Competition Winner and Concluding Remarks	Innovation,
		Entrepreneurship and
	and Concluding Nemarks	Venture Investment
VC13	HIMSS Venture Connect Networking Reception	Innovation,

ID	タイトル	トピック分類
		Entrepreneurship and
		Venture Investment

4.3 表 3 トピック分類別教育セッション一覧

ID	タイトル	トピック分類
	Patient Care through Effective and Efficient Nursing	Clinical Informatics &
NI1	Documentation	Clinician Engagement
NITO	Predictive Analytics and the Impact on Nursing Care	Clinical Informatics &
NI2	Delivery	Clinician Engagement
NITO	Tananaki a Hana af Talah saleh	Clinical Informatics &
NI3	Innovative Uses of Telehealth	Clinician Engagement
DEITA	Evalution of Informatics and UIT	Clinical Informatics &
PEIT4	Evolution of Informatics and HIT	Clinician Engagement
NIT 4	Completing a Colour Attack from an Operational Designation	Clinical Informatics &
NI4	Surviving a Cyber Attack from an Operational Perspective	Clinician Engagement
NI5	The Journey to Mobility	Clinical Informatics &
1012	The Journey to Mobility	Clinician Engagement
10	Advancing Digital Health in Canada	Clinical Informatics &
10	Advancing Digital Health in Canada	Clinician Engagement
6	60 Days to Clinical Communications Success	Clinical Informatics &
	60 Days to Clinical Communications Success	Clinician Engagement
37	The Blues®: Innovative Solutions Improving Outcomes	Clinical Informatics &
37	The blues@. Imovative solutions improving outcomes	Clinician Engagement
41	Meaningful Measures	Clinical Informatics &
11		Clinician Engagement
53	Our Evolving Journey with Clinical Decision Support	Clinical Informatics &
		Clinician Engagement
69	Becoming a Data-Driven Organization: The Journey to	Clinical Informatics &
	HIMSS Analytics EMRAM Stage 7	Clinician Engagement
73	Quality Payment Program Year 2	Clinical Informatics &
, , ,		Clinician Engagement
405	CMIO Roundtable	Clinical Informatics &
		Clinician Engagement
85	Preparing Your HIT Infrastructure for Digital Pathology	Clinical Informatics &
	and Beyond	Clinician Engagement
149	A Multi-Pronged Approach to Improve Provider	Clinical Informatics &
110	Satisfaction	Clinician Engagement

ID	タイトル	トピック分類
100	Creating Value via Analytics and AI-Driven Interactive	Clinical Informatics &
180	Radiology Reports	Clinician Engagement
44.4	Ni	Clinical Informatics &
411	Nursing Informatics Roundtable	Clinician Engagement
107	Tabanatina Fuidana Basad Basisian Table Within an FUR	Clinical Informatics &
197	Integrating Evidence-Based Decision Tools Within an EHR	Clinician Engagement
412	Inches in a Cabrilla Infant Carra Haira Mahila Tahundan	Clinical Informatics &
412	Improving Febrile Infant Care Using Mobile Technology	Clinician Engagement
207	Daint of Care Display of Delative Cost Information	Clinical Informatics &
207	Point-of-Care Display of Relative Cost Information	Clinician Engagement
222	Classed Loop Defermal Communications	Clinical Informatics &
223	Closed-Loop Referral Communications	Clinician Engagement
220	CDS in the Cloud: Deploying a CDC Guideline for National	Clinical Informatics &
239	Use	Clinician Engagement
270	Clinical Optimization: Partnership, Success and Lessons	Clinical Informatics &
270	Learned	Clinician Engagement
288	Stanford Children's Outside Image Management Journey	Clinical Informatics &
200		Clinician Engagement
298	Zeroing in on the Patient to Reduce Alert Fatigue	Clinical Informatics &
290	Zeroing in on the ratient to Reduce Alert Fatigue	Clinician Engagement
	Opening Keynote: The Compliance Landscape: Friend or	Compliance, Risk
COM1	Foe?	Management, and Program
		Integrity
	Cutting Edge Health Technology Compliance Issues: The	Compliance, Risk
COM2	Double-Edged Sword	Management, and Program
	Double-Eaged Sword	Integrity
		Compliance, Risk
СОМЗ	The Trap of Reporting Quality	Management, and Program
		Integrity
		Compliance, Risk
COM4	The "Stark" Reality of Managing Compliance	Management, and Program
		Integrity
COM5		Compliance, Risk
	How to Best Manage Cybersecurity Risks	Management, and Program
		Integrity

ID	タイトル	トピック分類
		Compliance, Risk
СОМ6	Closing Keynote: Completing the Journey through the	Management, and Program
	World of Compliance	Integrity
		Compliance, Risk
89	Fraud and Abuse Compliance for the Health IT Industry	Management, and Program
		Integrity
	Favinaina Haalth Tachaalaay Buyara and Callora far	Compliance, Risk
159	Equipping Health Technology Buyers and Sellers for	Management, and Program
	Potential Increased U.S. Governmental Scrutiny	Integrity
	Research and the EHR: Process Improvement Through	Compliance, Risk
160	Integration	Management, and Program
_ == === == == == == == == == == == == =	Integration	Integrity
	Automate Consent to Comply with a New IQR Quality	Compliance, Risk
184	Measure	Management, and Program
	measure	Integrity
	Managing eCQM Reporting Through a System EHR Transition	Compliance, Risk
217		Management, and Program
		Integrity
	How IT Leaders Can Reduce Reporting Burden, Boost	Compliance, Risk
413	Incentives	Management, and Program
		Integrity
		Compliance, Risk
272	Partnering for Medical Device Security and Patient Safety	Management, and Program
		Integrity
		Compliance, Risk
303	Whistleblowing Under the False Claims Act	Management, and Program
		Integrity
ACC01	Machine Learning & AI For Healthcare	Connected Health and
	Processing & Altroi Healthcare	Telehealth
CLO01	Cloud Computing Forum	Connected Health and
		Telehealth
PCHSY	Digital & Personal Connected Health	Connected Health and
MP01		Telehealth
14	A Framework to Support Measure Development for	Connected Health and
	Telehealth	Telehealth

ID	タイトル	トピック分類
AC18-	Marking the Challes of Digital Marking Board Cart	Connected Health and
ABABE	Meeting the Challenges of Digital Medicine Breakfast	Telehealth
4.6		Connected Health and
46	The Impact of Smartphone Technology in Clinical Practice	Telehealth
400		Connected Health and
403	Health Care Without Walls Learning Session	Telehealth
62	Name Name hall Talamadicing for Asuka Cara Dakinaka	Connected Health and
62	Home Hospital: Telemedicine for Acute Care Patients	Telehealth
TI DOE	Maling Way for Connected Health	Connected Health and
ILP05	Making Way for Connected Health	Telehealth
AC18-		Connected Health and
ARTIN	Applied AI & Process Automation Workshop	Telehealth
T1		reierieaitri
78	NVD Opporand: The Next Congration of Care Delivery	Connected Health and
76	NYP OnDemand: The Next Generation of Care Delivery	Telehealth
03	Dobay is wall look by Allaymahan of far Entermine Talahank	Connected Health and
93	Behavioral Health: A Launchpad for Enterprise Telehealth	Telehealth
AC18-		Connected Health and
ILP18	Innovation Collaborative Update	Telehealth
110	Solutions, Strategies and Success: How Can Telemedicine	Connected Health and
110	Help?	Telehealth
ILP12	Newsmaker Interview: Proteus Digital Health and the	Connected Health and
1LP12	Future of Digital Therapeutics (DTx)	Telehealth
142	Fall Prevention and Fire Departments	Connected Health and
142	raii rievendon and riie Departments	Telehealth
1/12	The EUD Ann Store Is Open What Is on the Shelf?	Connected Health and
143	The EHR App Store Is Open – What Is on the Shelf?	Telehealth
152	Connected Care: VA, Virtual Health and the Patient	Connected Health and
152	Experience	Telehealth
150	IoT and Wayfinding: Optimizing Healthcare	Connected Health and
158		Telehealth
AC18-		Connected Health and
DTX1	Welcome and Overview	Telehealth
AC18-	Ipsos Report Briefing: Key Insights from Study of Patients'	Connected Health and

ID	タイトル	トピック分類
DTX2	Use of Digital Therapeutics	Telehealth
AC18-	Cairing Assessment Milest Design Of Design March	Connected Health and
DTX3	Gaining Acceptance: What Payers & Providers Need	Telehealth
AC18-	Cathian David	Connected Health and
DTX4	Getting Payers on Board	Telehealth
101	The Dower of Health IT - Dradiet Drayent Innovate	Connected Health and
181	The Power of Health IT – Predict, Prevent, Innovate	Telehealth
190	Chat with a Doctor: On-Demand, Asynchronous Physician	Connected Health and
189	Advice	Telehealth
AC18-	Finacida Chatt. Dharman Daranastiva en DTv	Connected Health and
DTX5	Fireside Chat: Pharma Perspective on DTx	Telehealth
AC18-	Ctatus Undeton, VD 9 Vains	Connected Health and
DTX6	Status Updates: VR & Voice	Telehealth
AC18-	Industry Veterans Discuss: Clinical Validation of Digital	Connected Health and
DTX7	Therapeutics	Telehealth
AC18-	Attandag Foodback, Hayra Vous Cay	Connected Health and
DTX8	Attendee Feedback: Have Your Say	Telehealth
AC18-	Fitbit Interactive Demo	Connected Health and
DTX9	FIGURE Interactive Demo	Telehealth
216	Consider the Council of the Detical Council of the	Connected Health and
216	Smartphones for Caregivers = Better Patient Experiences	Telehealth
219	Caring for Astronauts in Space: The Role of Telemedicine	Connected Health and
219	at NASA	Telehealth
222	Home Care Success with Virtual Care and Remote	Connected Health and
232	Monitoring	Telehealth
248	Create and Scale a Joint Telehealth Support Model with	Connected Health and
240	Vendors	Telehealth
264	Remote Patient Monitoring: A Mississippi Success Story	Connected Health and
20 4		Telehealth
SPOT2	Closing the Evidence Gap in Connected Health	Connected Health and
3		Telehealth
270	Duinley and Markey of a Talley and Talley	Connected Health and
279	Bricks and Mortar of a Telehealth Initiative	Telehealth
SPOT2	HIMSS International: the global approach	Connected Health and

ID	タイトル	トピック分類
4		Telehealth
PEES0	Deliver Francisco Constitution	Consumer & Patient
1	Patient Engagement & Experience Summit	Engagement
10	Cooling Control British Francisco	Consumer & Patient
12	Scaling a Customized Patient Experience	Engagement
20	Detiont Engagement, IT Takes a Village	Consumer & Patient
28	Patient Engagement: IT Takes a Village	Engagement
402	Changing the Channel: Transforming Interactive Patient	Consumer & Patient
402	Entertainment	Engagement
44	Lessons from Lawsuits: How to Use Health IT to Avoid	Consumer & Patient
44	Being Sued and Improve Healthcare Teams	Engagement
54	Trailblazing a New Path for Healthcare and Life Sciences	Consumer & Patient
54	Halibiazing a New Facil for Healthcare and Life Sciences	Engagement
60	Safer Transition from the ER Using Asynchronous Virtual	Consumer & Patient
00	Care	Engagement
65	The Value of the Clinical Narrative in Cancer Care	Consumer & Patient
03	The value of the Chilical Natrative in Cancer Care	Engagement
76	Transforming Patient Experience with a Mobile Wayfinding	Consumer & Patient
70	Platform	Engagement
91	How to Create a World-Class Financial Service Center	Consumer & Patient
<i></i>		Engagement
111	Connected Care IRL (In Real Life)	Consumer & Patient
111		Engagement
117	Efficacy of Multimedia in Patient-Physician Interactions	Consumer & Patient
		Engagement
124	Expanding Access to Advance Care Plans with HIE	Consumer & Patient
1		Engagement
SPOT0	Our Journey to Putting Patients First	Consumer & Patient
9		Engagement
140	A New Era: The CMO's Role at the Healthcare	Consumer & Patient
	Consumerism Table	Engagement
156	Digital Transformation Across the Healthcare Ecosystem	Consumer & Patient
150	Signal Transformation Fields the Fredhildre Leosystem	Engagement
161	Tough Girl on the Net - Connected Health: A Patient	Consumer & Patient

ID	タイトル	トピック分類
	Narrative	Engagement
470	Leverage Data to Improve Patient Engagement and	Consumer & Patient
172	Growth	Engagement
407		Consumer & Patient
187	Create a Frictionless Healthcare Payments Experience	Engagement
24.4	Taraki a ka Mala Barad Gara Challas Marallala	Consumer & Patient
214	Transitioning to Value-Based Care? Chatbot May Help	Engagement
220	Harris Wardla Baile Bat	Consumer & Patient
230	Harvesting Wearable Device Data	Engagement
254	Democratizing Patient Data: A Story of Patient	Consumer & Patient
251	Empowerment	Engagement
262	Developed in the Detiont Europianes Through Intelligence	Consumer & Patient
262	Personalizing the Patient Experience Through Intelligence	Engagement
271	Social Determinants and AI – A Recipe for Truly	Consumer & Patient
271	Personalized Healthcare	Engagement
275	Machine Learning and Big Data to Drive Patient	Consumer & Patient
275	Engagement and Better Health Outcomes	Engagement
277	Building and Maintaining a Modern Provider Directory	Consumer & Patient
2//	Building and Maintaining a Modern Provider Directory	Engagement
CCC1	The Need for Trended Data	Culture of Care & Care
CCC1	The Need for Trended Data	Coordination
LT1	Opening Keynote: Information and Technology in an	Culture of Care & Care
LII	Aging World	Coordination
CCC2	Creating a Culture of Shared Decision making	Culture of Care & Care
CCC2	Creating a Culture of Shared Decision-making	Coordination
LT2	Healthcare Information and Systems Management –	Culture of Care & Care
LIZ	Analysis & Design	Coordination
CCC3	Bridging Gaps: Interfaces and applications for shared	Culture of Care & Care
CCC3	decision-making	Coordination
CCC4	Collaborative Platforms for Cooperative Decision-making	Culture of Care & Care
CCC4		Coordination
1.74	Healthcare Information and Systems Management –	Culture of Care & Care
LT4	Testing and Evaluation	Coordination
CCC5	New Roles - New Skills: Building a Workforce For the New	Culture of Care & Care

ID	タイトル	トピック分類
	World	Coordination
LTE	Healthcare Information and Systems Management –	Culture of Care & Care
LT5	Privacy and Security	Coordination
CCCC	Closing Keynote - Payment Reform to Support a New	Culture of Care & Care
CCC6	Culture	Coordination
LT6	Closing Keynote: The LTPAC Information and Technology	Culture of Care & Care
LIO	Champion	Coordination
19	Ontimizing Care Transitions Across the Continuum	Culture of Care & Care
19	Optimizing Care Transitions Across the Continuum	Coordination
25	Engaging and Empowering Patients: Redesigning Patient	Culture of Care & Care
35	Care	Coordination
101	Interporability Sets the Foundation for Care Coordination	Culture of Care & Care
101	Interoperability Sets the Foundation for Care Coordination	Coordination
102	Chief Experience Officer: New Leader Driving Innovation	Culture of Care & Care
183	to Transform Healthcare	Coordination
105	Designing From the Inside Out: Taking a Strategic	Culture of Care & Care
195	Approach	Coordination
205	Standardizing Clinical Communications Improves Patient	Culture of Care & Care
203	Care	Coordination
284A	It Takes a Community - Delivering 21st Century	Culture of Care & Care
204A	Coordinated Care for Those In and Out of Uniform	Coordination
286	From the Battlefield, to the Bedside, and Beyond: One	Culture of Care & Care
200	Veteran's Journey	Coordination
292	Getting to Yes: Exchanging Information to Better	Culture of Care & Care
292	Coordinate Patient Care	Coordination
302	How Useful Are Discharge Documents for Care	Culture of Care & Care
302	Coordination?	Coordination
PEIT6	Clinical Decision Support of the Future	Data Analytics/ Clinical and
PEITO	Cillical Decision Support of the Future	Business Intelligence
12	Chaling Duodisting Madalata Dadusa Dadusa	Data Analytics/ Clinical and
13	Stacking Predictive Models to Reduce Readmissions	Business Intelligence
20	Data Visualization and Improving Quality Outcomes: A	Data Analytics/ Clinical and
20	Davies Story	Business Intelligence
29	Early-Detection Pediatric Sepsis Algorithm	Data Analytics/ Clinical and

ID	タイトル	トピック分類
		Business Intelligence
20	How AI and Machine Learning are Disrupting the Current	Data Analytics/ Clinical and
30	Healthcare Ecosystem	Business Intelligence
4.5	Division Februaries BOT by Filming Park Ciles	Data Analytics/ Clinical and
45	Driving Enterprise ROI by Eliminating Data Silos	Business Intelligence
61	Column the Dhyminian Attailmation Durante for Longth of Ctay	Data Analytics/ Clinical and
61	Solving the Physician Attribution Puzzle for Length of Stay	Business Intelligence
77	Improving Hospital Capacity Management Through	Data Analytics/ Clinical and
//	Monte-Carlo Simulation	Business Intelligence
92	Beyond BI: Building a Rapid-Response Advanced	Data Analytics/ Clinical and
92	Analytics Unit	Business Intelligence
108	Building an Analytics-Driven Laboratory Outreach	Data Analytics/ Clinical and
100	Business	Business Intelligence
109	Empowering Data-Driven Health	Data Analytics/ Clinical and
109	Empowering Data-Driven nearth	Business Intelligence
125	How Data Analytics Reduces Nurse Leakage, Improves	Data Analytics/ Clinical and
123	Care	Business Intelligence
141	Managing Machine Learning: Insights and Strategy	Data Analytics/ Clinical and
171	managing riacinne Learning. Insignts and Strategy	Business Intelligence
150	Clinical and Operational Excellence at the Cleveland Clinic	Data Analytics/ Clinical and
130	Cimical and Operational Excellence at the Cleveland Cimic	Business Intelligence
157	From Big Data to Big Knowledge: Optimizing Medication	Data Analytics/ Clinical and
137	Management	Business Intelligence
SPOT1	Blockchain in Obesity and Type II Diabetes Treatment,	Data Analytics/ Clinical and
2	Clinical Research Administration, and Value-Based	Business Intelligence
2	Contracting	
173	Visualizing the Patient Experience Using an Agile	Data Analytics/ Clinical and
173	Framework	Business Intelligence
177	Using Market Data to Move the Needle on Performance	Data Analytics/ Clinical and
		Business Intelligence
188	Clinical and Operational Accountability in a Large IDN	Data Analytics/ Clinical and
		Business Intelligence
198	Push Not Pull: Using Data Science to Improve OR	Data Analytics/ Clinical and
	Operations	Business Intelligence

ID	タイトル	トピック分類
245	D. H. M. H. D. L. China D. L.	Data Analytics/ Clinical and
215	By the Numbers: Leveraging Your Clinical Analytics Data	Business Intelligence
231	AI-Powered Early Warning System to Improve Patient	Data Analytics/ Clinical and
231	Safety	Business Intelligence
244	Insight on Substance Abuse Treatment for Better	Data Analytics/ Clinical and
	Outcomes	Business Intelligence
263	Finding the ROI of AI	Data Analytics/ Clinical and
203	Thiding the NOT of At	Business Intelligence
278	How Analytics Can Create a Culture of Continuous	Data Analytics/ Clinical and
270	Improvement	Business Intelligence
293	Ethical Data Use as a Driver of Clinical and Business	Data Analytics/ Clinical and
293	Intelligence	Business Intelligence
PEIT2	Taming the EHR: Relieving Physician Administrative	EHRs
FL112	Burden	LIINS
4	Enterprise-Wide Value Realization through IT: A Davies	EHRs
4	Story	LIINS
84	Using Simulation Training to Speed EHR Adoption	EHRs
121	Quality Payment Program: Advancing Care Information	EHRs
153	Advanced Alternative Payment Models	EHRs
409	Reducing Physician Burnout: Mitigating Impact of the EHR	EHRs
243	Quality Payment Program Developer Tools & EHRs Town	EHRs
243	Hall	ENKS
250	Navigating the Gray Areas: Outpatient/Inpatient Hybrids	EHRs
256	Achieving Success with 2018 EHR Meaningful Use Criteria	EHRs
260	From Implementation to Optimization: Moving Beyond	EUDo
260	Operations	EHRs
202	Achieving HIMSS Stage 7: Realizing the Benefits of Your	ELID.
282	EHR	EHRs
DCC01	Develope Code Colletions Commit	Emerging Payment Models
RSC01	Revenue Cycle Solutions Summit	for Value-Based Care
DI 14	Opening Keynote: Patient Engagement: What Should it	Emerging Payment Models
BH1	Look Like in an APM Universe?	for Value-Based Care
פוום	Key Issues in Choosing and Developing Your Alternative	Emerging Payment Models
BH2	Payment Model	for Value-Based Care

ID	タイトル	トピック分類
56	Navigating the Briar Patch: Addressing Regulatory	Emerging Payment Models
BH3	Compliance in an Alternative Payment World	for Value-Based Care
DUIA	Shared Goals: Creating Alignment between Hospital	Emerging Payment Models
BH4	Systems and Independent Physicians	for Value-Based Care
DUE	Information Integration: Leveraging Data Analytics to	Emerging Payment Models
BH5	Mitigate Actuarial Challenges	for Value-Based Care
DUIC	Closing Keynote: Supply Chain Economics: A Remedy for	Emerging Payment Models
BH6	What Ails You	for Value-Based Care
_	Dather To a disco	Emerging Payment Models
5	Better Together	for Value-Based Care
PAYF0	Lucker Limited Development To the Oak	Emerging Payment Models
4	Luncheon: HIMSS18 Payer Forum - Invite Only	for Value-Based Care
00	Population Health and Data Foster Success in 23	Emerging Payment Models
88	MIPS-ACOs!	for Value-Based Care
00	Precise Disease Classification Optimizes Bundled	Emerging Payment Models
99	Payments	for Value-Based Care
415	Constitute Charles in Alicentant for a Value Decad Would	Emerging Payment Models
415	Creating Strategic Alignment for a Value-Based World	for Value-Based Care
200	QPP/MIPS Success with Longitudinal Quality	Emerging Payment Models
299	Measurement	for Value-Based Care
	AT Doon Loaming and Dady Conson Nativents for	Health Informatics
16	AI, Deep Learning and Body Sensor Networks for	Education, Career
	Healthcare Transformation	Development & Diversity
401	Enabling a Stronger, More Skilled Global eHealth	Emerging Payment Models
401	Workforce	for Value-Based Care
90	Educating the Next Congration of Physician Informaticians	Emerging Payment Models
80	Educating the Next Generation of Physician Informaticians	for Value-Based Care
CSCO	LIMCC19 Caroor Fair	Emerging Payment Models
CSCO	HIMSS18 Career Fair	for Value-Based Care
CSC1	LUMCS Welsons and Introduction (AM Consists)	Emerging Payment Models
C3C1	HIMSS Welcome and Introduction (AM Session)	for Value-Based Care
CSC2	Change Lin Vous Doorwee and Calus Vous Tatanian Militia	Emerging Payment Models
CSCZ	Shape Up Your Resume and Solve Your Interview Mistakes	for Value-Based Care
CSC3	Creating Your Personal Brand	Emerging Payment Models

ID	タイトル	トピック分類
		for Value-Based Care
CCC4	LITMCC Welcome and Introduction (DM Cossion)	Emerging Payment Models
CSC4	HIMSS Welcome and Introduction (PM Session)	for Value-Based Care
CCCE	What to Espect When I caling for a Joh	Emerging Payment Models
CSC5	What to Expect When Looking for a Job	for Value-Based Care
CSC6	Professional Naturaling and Montaring	Emerging Payment Models
C3C6	Professional Networking and Mentoring	for Value-Based Care
CSC7	Advice for the Aspiring Female Executive	Emerging Payment Models
C3C7	Advice for the Aspiring Fernale Executive	for Value-Based Care
416	Building Capacity Through Diversity in Health IT	Emerging Payment Models
410	Education	for Value-Based Care
281	Physician Suicide and Clinician Engagement Tools	Emerging Payment Models
201	Friysician Suicide and Cimician Engagement 100is	for Value-Based Care
	Opening Keynote: Leverage Points to Advance	Health Information
INT1	Interoperability	Exchange, Interoperability
	The operability	& Data Integration
	How HIE's are Making a Difference for Complex	Health Information
INT2	Populations Today	Exchange, Interoperability
	Topulations Today	& Data Integration
	Enabling Successful Sharing of Behavioral Health through	Health Information
INT3	HIE	Exchange, Interoperability
		& Data Integration
		Health Information
INT4	Integrating Data Sources to Support Care Delivery	Exchange, Interoperability
		& Data Integration
		Health Information
INT5`	Creative Solutions to Common Problems	Exchange, Interoperability
		& Data Integration
	Closing Keynote: A Great Leap Forward or Incrementalism?	Health Information
INT6		Exchange, Interoperability
		& Data Integration
		Health Information
21	HIE Data: The Value Proposition for Payers and Providers	Exchange, Interoperability
		& Data Integration
52	How an HIE and a Health Plan Innovated to Improve	Health Information

ID	タイトル	トピック分類
	Medical Reconciliation	Exchange, Interoperability
		& Data Integration
		Health Information
58	Sutter Health: A Health Data Sharing Case Study	Exchange, Interoperability
		& Data Integration
		Health Information
68	HIE Image Sharing for a Statewide Stroke Network	Exchange, Interoperability
		& Data Integration
	HIEs, CommonWell, Carequality Can Work Together:	Health Information
83	Here's How	Exchange, Interoperability
	nere's now	& Data Integration
		Health Information
112	The Nuts and Bolts of Product Testing and Certification	Exchange, Interoperability
		& Data Integration
		Health Information
126	Is Blockchain Right for Good Health?	Exchange, Interoperability
		& Data Integration
		Health Information
133	Embracing Longitudinal Person-Centered Care Plans	Exchange, Interoperability
		& Data Integration
		Health Information
148	OHI: Healthcare Interoperability at the Olympic Games	Exchange, Interoperability
		& Data Integration
SPOT1	Customer Relationship Management (CRM) in Healthcare	Health Information
1	- Transforming the Experience of Healthcare	Exchange, Interoperability
<u> </u>	Transforming the Experience of Freditheare	& Data Integration
		Health Information
164	Leveraging HIE for Disaster Preparedness and Response	Exchange, Interoperability
		& Data Integration
	The Convergence of Healthcare's Emerging Tech Alphabet Soup with Blockchain	Health Information
174		Exchange, Interoperability
		& Data Integration
	HIEs to the Rescue! From Harvey and Flint to Cyber Response	Health Information
226		Exchange, Interoperability
		& Data Integration

ID	タイトル	トピック分類
	Five Ways Beel Time Natifications Can Immune	Health Information
414	Five Ways Real-Time Notifications Can Improve	Exchange, Interoperability
	Population Health	& Data Integration
		Health Information
238	Sustainability and Social Security Disability: A Case Study	Exchange, Interoperability
		& Data Integration
	Identifying Francisch FD Harry in LITE Instanta Cons	Health Information
254	Identifying Frequent ED Users in HIE Impacts Case	Exchange, Interoperability
	Management	& Data Integration
	A FLITD Franklad Face retain for Llogith Information	Health Information
269	A FHIR-Enabled Ecosystem for Health Information	Exchange, Interoperability
	Sharing	& Data Integration
		Health Information
287	"SAFR" Care Coordination Between Paramedics and ED	Exchange, Interoperability
		& Data Integration
		Health Information
297	Clinical Data Registries: Solving for Interoperability	Exchange, Interoperability
		& Data Integration
120	The Evolution & Global Deployment of Desktop to Data	HIT Infrastructure &
120	Center (D2D)	Standards
129	Building a Healthier Future with ML and the Cloud	HIT Infrastructure &
129	building a realitile rature with the and the cloud	Standards
175	Journey from the Basement: Data Management Within	HIT Infrastructure &
173	Colocation	Standards
190	Digital Command Center for EHR Implementation	HIT Infrastructure &
130	Digital Command Center for Ent Implementation	Standards
191	The Cloud Through the Eyes of a Community Health	HIT Infrastructure &
191	Center CIO	Standards
247	Healthcare Transformation Led and Enabled by Disruptive	HIT Infrastructure &
۷٦/	Cloud Technology	Standards
249	Breaking Down Barriers with Master Data Management	HIT Infrastructure &
<u> </u>	and Data Governance	Standards
265	Scalable Storage and Disaster Recovery Infrastructure for	HIT Infrastructure &
203	Medical Images	Standards
48	Improving Healthcare Through Co-Design	Human Factors, User

ID	タイトル	トピック分類
		Experience and Design
406	Creating Considered Consumer Experiences: What Can	Human Factors, User
106	We Learn from Other Industries?	Experience and Design
406	Empowering Patients: Rural Healthcare and Chronic	Human Factors, User
406	Conditions	Experience and Design
122	Patients As Consumers: How Leading Providers Are	Human Factors, User
122	Digitally Transforming Patient Consults	Experience and Design
127	The Value of Behavior Science for Effective Patient	Human Factors, User
127	Engagement	Experience and Design
138	Patients As Partners: Embracing Patient-Driven Design	Human Factors, User
130	and Innovation	Experience and Design
218	Workflow Informed Decision Support Tools for Nursing	Human Factors, User
210	Homes	Experience and Design
228	Benchmarking and Iterative Usability Testing: A Case	Human Factors, User
220	Study	Experience and Design
300	User-Centered Design of a Mobile ePrescription Service	Human Factors, User
300	Oser-Centered Design of a Mobile errescription Service	Experience and Design
		Improving Quality
PEIT1	Update from the National Coordinator for Health IT	Outcomes Through Health
		IT
	Taking Action on Opioids Through Research and Best	Improving Quality
7	Practice	Outcomes Through Health
	rractice	IT
END1	APG Meetup: How Does Your Organization Use Data to	Improving Quality
9	Improve Health Outcomes?	Outcomes Through Health
	Improve reduct outcomes:	IT
		Improving Quality
23	Data-Driven Patient Care: Making eCQMs Work for You	Outcomes Through Health
		IT
	Standardizing Use of Clinical Best Practice with Information and Technology: A Davies Story	Improving Quality
36		Outcomes Through Health
		IT
	Transforming Medicaid Delivery on Staten Island: A Case	Improving Quality
39	Study	Outcomes Through Health
		IT

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		Improving Quality
42	Imagine a Hospital Ward Without Code Blue Alarms	Outcomes Through Health
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55	Recognition Testing Improves Immunization Workflow	Outcomes Through Health
	and Data	IT
		Improving Quality
71	The Art and Science of eCQM Field Testing	Outcomes Through Health
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	Conince Montal Illegate Date Has to Transport Hashin	Improving Quality
74	Serious Mental Illness: Data Use to Improve Health	Outcomes Through Health
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	Improving Quality Quicomos in a Rick Recod Worlds A	Improving Quality
100	Improving Quality Outcomes in a Risk-Based World: A	Outcomes Through Health
	Davies Story	IT
	Learning from Patient Safety Events: A Shift from	Improving Quality
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		Improving Quality
132	Reducing Harm in Pediatric Care: A Davies Story	Outcomes Through Health
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		Improving Quality
134	Case Studies on Transforming Care with Cloud and AI	Outcomes Through Health
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	How Data and Analytics Can Improve CV Quality and	Improving Quality
135	Outcomes	Outcomes Through Health
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		Improving Quality
151	The Use of Blockchain to Improve Quality Outcomes	Outcomes Through Health
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182	Improving Quality of Care in Anesthesiology	Improving Quality
	. 50,	Outcomes Through Health

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196	Using Data for Evidence Based Decision-Making: A Davies Story	Improving Quality Outcomes Through Health IT
199	A National Repository of Widely Shareable, Computable CDS	Improving Quality Outcomes Through Health IT
200	Standards and Interoperability – DoD/VA Health Information Exchange	Improving Quality Outcomes Through Health IT
206	Improving Preventative Care in Pediatrics through Health and Technology: A Davies Story	Improving Quality Outcomes Through Health IT
209	Improve Patient Health Through Real-Time ADT Integration	Improving Quality Outcomes Through Health IT
210	MHS Opioid Registry: Promoting the Learning Health System	Improving Quality Outcomes Through Health IT
222	Innovative Use of Technology in the Home to Improve Diagnosis and Care: A Davies Story	Improving Quality Outcomes Through Health IT
225	Implementation of a Clinical Trial Matching System	Improving Quality Outcomes Through Health IT
241	Why Am I Taking This Drug? Incorporating Indications in CPOE	Improving Quality Outcomes Through Health IT
SPOT2 2	EMRAM Criteria Updates: What you need to know	Improving Quality Outcomes Through Health IT
257	Creating an EHR-Based Antimicrobial Stewardship Program	Improving Quality Outcomes Through Health IT
290	Turning Clinical Data Into Effective Action: A Case Study	Improving Quality

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		Innovation,
ILP15	CIO/CTO Leadership Perspective	Entrepreneurship and
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INV1	,	Entrepreneurship and
	challenges	Venture Investment
	Creating a Culture of Innovation an Innovation Lab	Innovation,
INV2	Perspective	Entrepreneurship and
	reispective	Venture Investment
	Innovation at the Edges: How Innovation Happons with	Innovation,
INV3	Innovation at the Edges: How Innovation Happens with Sparse Resources	Entrepreneurship and
	Sparse Nesources	Venture Investment
		Innovation,
INV4	Tribal Leadership: Leading Culture and Innovation	Entrepreneurship and
		Venture Investment
		Innovation,
INV5	Design Thinking Your Way to Meaningful Innovation	Entrepreneurship and
		Venture Investment
		Innovation,
INV6	Closing Keynote: Health Happens Everywhere	Entrepreneurship and
		Venture Investment
		Innovation,
PEIT7	Unlocking the Power of Healthcare Data	Entrepreneurship and
		Venture Investment
	Technology for a Healthier Future: Modernization,	Innovation,
1		Entrepreneurship and
	Machine Learning, and Moonshots	Venture Investment
		Innovation,
15	Beyond the Pilot: Value-Driven Innovation	Entrepreneurship and
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		Innovation,
31	Due Diligence for Health IT Investments	Entrepreneurship and
		Venture Investment

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ILP01	Welcome Remarks	Entrepreneurship and
		Venture Investment
		Innovation,
ILP02	Keynote: Connected Health and the Human Element:	Entrepreneurship and
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	Connected Disher Cons. Facilities of CTM Strategy to	Innovation,
ILP04	Connected Diabetes Care: Envisioning a GTM Strategy to	Entrepreneurship and
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		Venture Investment
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		Venture Investment
	Establishing and Nurturing a Culture of Innovation	Innovation,
63	Establishing and Nurturing a Culture of Innovation: Lessons Learned from Global Disrupters	Entrepreneurship and
		Venture Investment
SPOT0	Discover the HIMSS Innovation Center – Your Home	Innovation,
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J	Away from HIMSS	Venture Investment
	Intrapreneurship and the Approach to Innovation from	Innovation,
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	Spotlight: Discovering Human-Centered Possibilities thru	Innovation,
ILP06	Engagement Blueprinting	Entrepreneurship and
	Lingagement blueprinting	Venture Investment
		Innovation,
ILP07	Advancing Digital Health with Behavior Science	Entrepreneurship and
		Venture Investment
	Incentives, Wellness & the Financials of Workplace Connected Health	Innovation,
ILP08		Entrepreneurship and
	Connected reduct	Venture Investment
ILP09	Innovating Innovation: Leveraging Your Community for	Innovation,
16709	Successful Innovation	Entrepreneurship and

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	N	Innovation,
ILP10	Newsmaker Interview: Investing in a Better Future for	Entrepreneurship and
	Medicine with Connected Care	Venture Investment
		Innovation,
VC1	HIMSS VentureConnect Opening Reception	Entrepreneurship and
		Venture Investment
		Innovation,
VC2	HIMSS VentureConnect Exclusive Investor Breakfast	Entrepreneurship and
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	Attractiveness of the Behavioral Health Market:	Innovation,
102		Entrepreneurship and
	Understanding Valuations, Trends and Growth	Venture Investment
	Inspiring Digital Health Inpovenion, Transformative	Innovation,
113	Inspiring Digital Health Innovation: Transformative	Entrepreneurship and
	Insights from Across the Globe	Venture Investment
		Innovation,
VC3	Health Tech Investment and Market Trends	Entrepreneurship and
		Venture Investment
		Innovation,
VC4	Investor Perspective: The Healthcare Ecosystem	Entrepreneurship and
		Venture Investment
		Innovation,
ILP11	PGHD On the Rise	Entrepreneurship and
		Venture Investment
		Innovation,
VC5	Series A Pitch Competition Presentations	Entrepreneurship and
		Venture Investment
		Innovation,
ILP13	Transforming Pharma for the Digital Age	Entrepreneurship and
		Venture Investment
		Innovation,
145	Blockchain 101 for Healthcare	Entrepreneurship and
		Venture Investment
ILP14	Partnering with HHS for Innovation in Connected Health	Innovation,

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		Innovation,
VC6	Building out the Human Capital Element of Startups	Entrepreneurship and
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		Innovation,
VC8	Reflections on Raising a Series A: An Insider Conversation	Entrepreneurship and
		Venture Investment
		Innovation,
VC7	An Address from HIMSS President & CEO	Entrepreneurship and
		Venture Investment
	New Poles Could all board Countries in Terror	Innovation,
VC9	New Roles for Healthcare Organizations in Innovation and	Entrepreneurship and
	Investment	Venture Investment
MICCNI		Innovation,
MKCN 1	MarketConnect Live	Entrepreneurship and
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	Fueling an Innovation Engine to Deliver Alternative	Innovation,
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	rayment models	Venture Investment
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4	Value	Entrepreneurship and
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VC11	Keys to Investing in the Global Health Tech Market	Entrepreneurship and
		Venture Investment
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VC12	Announcement of Series A Pitch Competition Winner and Concluding Remarks	Entrepreneurship and
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VC13		Entrepreneurship and
		Venture Investment

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AC18- IEEE	Emerging Healthcare Technologies Forum	Entrepreneurship and
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204	Run, Run, Jump: The Right Way to Embrace Startup	Entrepreneurship and
	Innovation	Venture Investment
	Carlina Charles (Inc.)	Innovation,
220	Creating a Culture of Innovation: Best Practices from the	Entrepreneurship and
	Battlefields	Venture Investment
	Townships in the Medical Categories, A Chategory	Innovation,
227	Innovation in the Medicaid Enterprise: A State and Federal	Entrepreneurship and
	Priority Partnership	Venture Investment
	Innovertive Leadership Debatic Technology and the Cuture	Innovation,
284B	Innovative Leadership, Robotic Technology and the Future	Entrepreneurship and
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CIOG	Club	Strategic Planning
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C1O1	Opening Reynote	Strategic Planning
CIO2	Mid-Morning Keynote	Leadership, Governance,
C102	Mid-Morning Reynote	Strategic Planning
CIO3	Mid-Afternoon Keynote	Leadership, Governance,
C103	Mid-Arternoon Reynote	Strategic Planning
CIO4	Closing Koyneto	Leadership, Governance,
C104	Closing Keynote	Strategic Planning
HX04	HX360 Partner Event - National Health IT Collaborative:	Leadership, Governance,
	Leveraging Health IT to Address Health Disparities	Strategic Planning
	State of the Industry: Highlights from HIMSS North	Leadership, Governance,
SPOT2	America's Leadership & Workforce and Compensation	Strategic Planning
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HX360	HX360 Partner Event - Leavitt Partners Executive Political	Leadership, Governance,
11/200	Briefing	Strategic Planning
40	IT Due Diligence in our Fire of Manager and Associate	Leadership, Governance,
49	IT Due Diligence in an Era of Mergers and Acquisitions	Strategic Planning
HX01	HX360 Executive Engagement Luncheon	Leadership, Governance,

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0.1	Insights Into the Changing Delegand Driegities of the CIO	Leadership, Governance,
81	Insights Into the Changing Role and Priorities of the CIO	Strategic Planning
HVOE	HX360 Partner Event - Accountable Care Learning	Leadership, Governance,
HX05	Collaborative Plenary	Strategic Planning
96	HIMSS CEO Addresses Leveraging Information and	Leadership, Governance,
90	Technology to Minimize Health's Economic Challenges	Strategic Planning
HX02	HX360 Executive Reception	Leadership, Governance,
11/02	TIADOO EXECUTIVE RECEPTION	Strategic Planning
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104	Information Operations (3-0) - Support Joint Readiness	Strategic Planning
131	What CIOs Should Know About Health System Strategy in	Leadership, Governance,
131	2018	Strategic Planning
HX03	HX360 Executive Engagement Luncheon	Leadership, Governance,
ПЛОЭ		Strategic Planning
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134	Quality	Strategic Planning
HX06	AVIA Innovator Executive Program - Digital Disruption: A	Leadership, Governance,
11/00	"No Regrets" response	Strategic Planning
163	Putting Patients First by Reducing Administrative Tasks	Leadership, Governance,
103	rutting rations i list by Reducing Administrative Tasks	Strategic Planning
170	A Measurement to Support the Health IT Regional	Leadership, Governance,
170	Strategy	Strategic Planning
410	Establishing a Healthcare Data Quality Assurance	Leadership, Governance,
410	Initiative	Strategic Planning
179	Clinical Process Improvement for Scalable Quality	Leadership, Governance,
1/3	Governance	Strategic Planning
202	Strategic Portfolio Management: Governing the	Leadership, Governance,
۷۷۷	Ungoverned	Strategic Planning
212	Developing an Enterprise Imaging Strategy	Leadership, Governance,
<u> </u>	Developing an Enterprise Imaging Strategy	Strategic Planning
202	Boston Strong: Lessons Learned from the Boston	Leadership, Governance,
283	Marathon Bombing	Strategic Planning
289	How Chief Digital Officers Can Boost Digital	Leadership, Governance,

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419	Build a Next-Gen IT Team to Embrace Digital Disruption	Strategic Planning
205	Percentitives on Leadership and Healtheare Advecage	Leadership, Governance,
305	Perspectives on Leadership and Healthcare Advocacy	Strategic Planning
400	The Need for a Nationwide Patient-Matching Solution	Patient Safety and Health IT
224	Sustaining Barcoding for Safety in IV Infusion	Patient Safety and Health IT
224	Administration	radent Salety and Health II
418	Improving Health IT Through Use of NLP/AI in	Patient Safety and Health IT
410	Documentation	radent Salety and Health IT
16	AI, Deep Learning and Body Sensor Networks for	Pharmacy Standards &
	Healthcare Transformation	Technology
401	Enabling a Stronger, More Skilled Global eHealth	Pharmacy Standards &
	Workforce	Technology
80	Educating the Next Generation of Physician Informaticians	Pharmacy Standards &
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416	Building Capacity Through Diversity in Health IT	Pharmacy Standards &
	Education	Technology
281	Physician Suicide and Clinician Engagement Tools	Pharmacy Standards &
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273	Fast and Furious: eRX/EPCS Implementation and	Pharmacy Standards &
	Optimization	Technology
296	Interoperability in Practice: Pharmacist eCare Plan	Pharmacy Standards &
		Technology
PH1	At the Crossroads of Volume and Value – You are Here	Population Health
PH2	One Medicine: Incorporating Population Health Principles	Population Health
	and Best Practices into Clinical Workflow	
PH3	Making the Numbers Work	Population Health
PH4	Into the Looking Glass: New Perspectives on the	Population Health
	Complexities of Population Health	
PH5	Improving Population Health One Person at a Time	Population Health
PH6	Beyond the Horizon: What's Next?	Population Health
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3	Model: Bringing Clarity to your Population Health Efforts	Population Health
51	Sustainable Population Health: One Health System's Journey	Population Health
56	Infectious Disease Rapid CDS Deployment: A Zika Case Study	Population Health
67	Inappropriate Opioids, Adverse Outcomes and IT Solutions	Population Health
70	The Role of Technology in Increasing Access to Care by Reaching Patients Where They Are	Population Health
72	Creating a Population Health Strategy That Scales	Population Health
87	Integrating Population Analytics and the EHR Environment	Population Health
118	Beyond the EHR: Continuous Innovation for the Transition to Value-Based Care	Population Health
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168	Building a Population Health Strategy That Physicians Love	Population Health
242	Population Health Information Exchange Over a Digital Bridge	Population Health
291	Harnessing EHR Data for Local Population Health Monitoring	Population Health
301	Create a Data-Driven Process to Manage the Quadruple Aim	Population Health
PM1	Opening Keynote: Precision Medicine at the Inflection Point	Precision Medicine/Genomics
PM2	Preparing for the Journey Using the Tools of the Trailblazers	Precision Medicine/Genomics
PEIT3	Bringing Artificial Intelligence to the Clinical Setting	Precision

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DMO	Blazing the Precision Medicine Trail: Data Interoperability	Precision
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DME	Ethica in Descision Medicines Ctill on Januarian Balance	Precision
PM5	Ethics in Precision Medicine: Still an Imprecise Balance	Medicine/Genomics
DMC	Closing Keynote: Going from the Trail to the Summit in	Precision
PM6	Precision Medicine	Medicine/Genomics
00	Duaniaira Madiaira Canantina II. una finan Daniir.	Precision
98	Precision Medicine: Separating Hype from Reality	Medicine/Genomics
114	Applying Genomic Intelligence and Decision Support at	Precision
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1	to Discern the Signal from the Noise	Medicine/Genomics
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CYB3	The Economic Aspects of Cybersecurity	Privacy, Security &
C1 D3	The Economic Aspects of Cybersecurity	Cybersecurity
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PEIT5	Cybersecurity Challenges Facing Physicians – Part II	Privacy, Security &
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	Learned	Cybersecurity
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24	from the HHS Office for Civil Rights	Cybersecurity
26	What's App Doc? Canadian Adventures in Secure	Privacy, Security &
20	Messaging	Cybersecurity
27	Deploying a Holistic Identity Management	Privacy, Security &
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40	Stewards of Healthcare and Public Health Critical	Privacy, Security &
40	Infrastructure	Cybersecurity
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73	to Enterprise Risk Management	Cybersecurity
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75	Adolescent Privacy: Solve This Problem or I'll Text You	Privacy, Security &
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123	Detecting Cyberthreats with ATT&CK-Based Analytics	Privacy, Security &
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136	Risk Management Framework for DoD Medical Devices	Privacy, Security &
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		Cybersecurity
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213	Medicine	Cybersecurity
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229	Cybersecurity: Achieving Prevailing Practices	Cybersecurity
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240	Environment	Cybersecurity
245	Improving RFID Security in a Healthcare Environment	Privacy, Security &
243	Improving KFID Security in a Healthcare Environment	Cybersecurity
255	Physician Awareness, Preparedness, and Perception of	Privacy, Security &
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259	New Medicare Card Project	Privacy, Security &
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261	Next-Gen Security Technologies for Healthcare	Privacy, Security &
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276	Incident Response Lessons from the Front Lines	Privacy, Security &
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234	Care	Cybersecurity
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Α	Six-Sigma Tools and Techniques to Achieve Organizational	Workflow, Change
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246	Balancing Leading Performance Indicators to Improve Patient Access	Workflow, Change
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	Use of RTLS to Support a Model of Patient-Centered Care	Process Improvement,
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	Improving Provider Accuracy in the EHR	Process Improvement,
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295	Intelligent Bed-Flow and Return on Investment	Process Improvement,
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86	Congressional Forum	Public Policy
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<i>37</i>	ONC National Coordinator	rubile rolley
105	Leveraging Medicaid Data to Advance Health in the States	Public Policy
115	Shaping the Future of Innovation at HHS: U.S.	Public Policy
	Department of Health and Human Services Town Hall	
137	Burden Reduction	Public Policy
185	Disrupt Advocacy: Put What You Know to Work for	Public Policy
	Patients	
201	ONC Policy and Technology Update	Public Policy
211	Partnering to Propel Interoperability and Improve Veteran	Public Policy
211	Care	
253	Telehealth on the Hill: How Policy Is Ushering Change	Public Policy
	A New Kind of Village: Combatting Loneliness in Older Adults	Social, Psychosocial,
165		Behavior Determinants
	Addis	Health
	Standardizing Collection of Social Determinants Data	Social, Psychosocial,
221		Behavior Determinants
		Health
		Social, Psychosocial,
266	Radical Care Transformation with Social Determinant Data	Behavior Determinants
		Health
274	Social-Health Data Exchange Facilitates Chronic Disease Care	Social, Psychosocial,
		Behavior Determinants
	Curc	Health
SWED	Swedish Education Session: Secure implementation of	(None)
01	eHealth services and solutions. Next steps post Swedish	(140116)

ID	タイトル	トピック分類
	Tenders.	
LT3	Healthcare Information and Systems Management –	(None)
	Selection, Implementation, Support, and Maintenance	
ASPC0	AsiaPac Summit	(None)
FT1	First Timer's Conference Orientation	(None)
AH1	About HIMSS: An Orientation to Our Organization	(None)
FT2	First Timer's Conference Orientation	(None)
32	For Students Only: An Orientation	(None)
CHSM 01	China Summit	(None)
64	Learning from the Devastating Effects of Three Hurricanes: The Critical Role of Health IT	(None)
END2 0	#healthITchicks Meetup	(None)
SPOT0	Meet the HIMSS Social Media Ambassadors	(None)
INTCO N01	International Conference	(None)
MSE1	Breakfast and Check-In	(None)
MSE2	Welcome and Microsoft Executive Keynote	(None)
MSE3	Innovation Award Presentations	(None)
MSE4	Customer Success Story	(None)
128	HIMSS Student Case Competition: Defining the Future of Transformative Care Today	(None)
MSE5	Virtual Health: TelaDoc and Customer Case Story	(None)
MSE6	Clinical/Operational Analytics: KenSci and Customer Case	(None)
MSE7	Story Break	(None)
	Healthcare NExT Session: Harnessing the Power of the	(None)
MSE8	Cloud and AI to Make a Difference	
144	About HIMSS: An Orientation to Our Organization	(None)
BCEX	Blockchain Forum Exhibit Floor Tour	(None)
MSE9	EPIC, Microsoft and Customer Success Story	(None)

ID	タイトル	トピック分類
MSE10	Closing Remarks and Boxed Lunch Served	(None)
176	Innovation Pitch Competitions…Learn from the Winners	(None)
178	HIMSS Annual Business Meeting	(None)
SPOT1	Engaging Through HIMSS Professional Development	(None)
8	Opportunities	
SPOT1	Enhancing Your Career Through HIMSS Certification	(None)
9	Programs	
234	Creating Healthy Incentives to Improve Integrated Care:	(None)
	Lessons Learned from Around the World	
31	Due Diligence for Health IT Investments	(Women in Health IT)

5. 略語集

ACO Accountable Care Organization

ADL Activities of Daily Living

ADS Authoritative Data Sources

AHIC American Health Information Community

AHIMA American Health Information Management Association

AHRQ Agency for Healthcare Research and Quality

AMA American Medical Association

ARRA American Recovery and Reinvestment Act of 2009

ASTM American Society for Testing and Materials

BPMN Business Process Modeling Notations

CAH Critical Access Hospital

CAHPS Consumer Assessment of Healthcare Providers and Systems

CBT Cognitive Behavioral Therapy

CCBT Computer-Based Cognitive Behavioral Therapy

CCD Continuity of Care Document

CCDA Consolidated Clinical Document Architecture

CCHIT Certification Commission for Health Information Technology

CCN CMS Certification Numbers
CCR Continuity of Care Record

CDA Clinical Document Architecture

CDC Centers for Disease Control and Prevention

CDIS Clinical Decision Intelligence System

CDISC Clinical Data Interchange Standards Consortium

CDS Clinical Decision Support
CDW Clinical Data Warehouse

CHIME College of Healthcare Information Management Executives

CHIP Children's Health Insurance Program

CHIPRA Children's Health Insurance Program Reauthorization Act of 2009

CIO Chief Information Officer

CITL Center for Information Technology Leadership

CKD Chronic Kidney Disease

CLIA Clinical Laboratory Improvement Amendments of 1988

CM Clinical Modification
CMO Chief Medical Officer

CMS Centers for Medicare & Medicaid Services
CORE Council on Operating Rules for Eligibility

CPOE Computerized physician order entry

DBR Disease-Based Registries

DCH Department of Community Health

DICOM Digital Imaging and Communication in Medicine

DoD U.S. Department of Defense

DOQ-IT Doctor's Office Quality - Information Technology
DPRP Diabetes Provider Recognition Program (of NCQA)

DQIM Data Quality Improvement Methodology

DSN Data Sharing Networks

EA Enterprise Architecture

EBM Evidence-based Medicine

EBP Evidence-based Practice

EHR Electronic Health Record

EMR Electronic Medical Record

EP Electorophysiology

ePHR electronic Personal Health Record
EPO Exclusive Provider Organization
FACA Federal Advisory Committee Act
FDA U.S. Food and Drug Administration
FDIS Final Draft International Standard
FFP Federal Financial Participation

FFS Fee-For-Service
FFY Federal Fiscal Year

FNPRM Final Notice of Proposed Rulemaking / Further Notice of Proposed

Rulemaking

FQHC Federally Qualified Health Center

FTE Full-Time Equivalent

HCIT Healthcare Information Technology

HEDIS Healthcare Effectiveness Data and Information Set

HHS U.S. Department of Health and human Service

HIE Health Information Exchange

HIMSS Healthcare Information and Management Systems Society

HIOs Health Information Organizations

HIPAA Health Insurance Portability and Accountability Act of 1996

HIT Health Information Technology

HITECH Health Information Technology for Economic and Clinical Health Act

HITPC Health Information Technology Policy Committee

HITSP Healthcare Information Technology Standards Panel

HL7 Health Level Seven

HMO Health Maintenance Organization

HOS Health Outcomes Survey

HPSA Health Professional Shortage Area

HRSA Health Resource and Service Administration (of HHS)

HSPs HIE service providers

IAPD Implementation Advanced Planning Document

ICD International Classification of Diseases

ICD-9-CM International Classification of Diseases, Ninth Revision, Clinical

Modification

IEC International Electrotechnical Commission

IFR Interim Final Rule

IHE Integrating the Healthcare Enterprise

IHS Indian Health Services
IOM Institute of Medicine

IPA Independent Practice Association

IRR Internal Rate of Return

ISO International Organization for Standardization

LOINC Logical Observation Identifiers Names and Codes

MA Medicare Advantage

MAC Medicare Administrative Contractor
MCO Medicaid managed care organization

MITA Medicaid Information Technology Architecture
MMIS Medicaid Management Information Systems

MRI Magnetic Resonance Imaging system

MSA Medical Savings Account

NCQA National Committee for Quality Assurance

NCVHS National Committee on Vital and Health Statistics

NeHC National eHealth Collaborative

NHIN Nationwide Health Information Network

NIST National Institute of Standards and Technology

NLM National Library of Medicine
NPI National Provider Identifier

NPRM Notice of Proposed Rulemaking NPSG National Patient Safety Goals

NQF National Qualifications Framework

NVLAP National Voluntary Laboratory Accreditation Program

ONC Office of the National Coordinator for Health Information Technology

P4P Pay for Performance

PACS Picture Archiving and Communication Systems

PAHP Prepaid Ambulatory Health Plan

PAPD Planning Advanced Planning Document

PCD Patient Care Device

PCHR Personally Controlled Health Records

PCMH Patient-Centered Medical Home

PCPI Physician Consortium for Performance Improvement

PCS Procedure Coding System
PDA Personal Digital Assistant
PFFS Private Fee-For-Service

PHM Population Health Management
PHO Physician Hospital Organization

PHR Personal Health Record
PHS Public Health Service

PHSA Public Health Service Act

PIHP Prepaid Inpatient Health Plan

POC Point-of-Care

POCT Point-of-Care testing

POEM Patient-Oriented Evidence that Matters

POS Problem Oriented System

PPO Preferred Provider Organization

PQRI Physician Quality Reporting Initiative

PSO Provider Sponsored Organization

QOL Quality of Life

RHC Rural Health Clinic

RHIO Regional Health Information Organization

RLS Record Location Services
ROI Return On Investment

RPM Remote Patient Monitoring

RPPO Regional Preferred Provider Organization

RSNA Radiological Society of North America

RxNorm a standardized nomenclature for clinical drugs and drug delivery

devices

SMHP State Medicaid Health Information Technology Plan

SNOMED-CT Systematized Nomenclature of Medicine - Clinical Terms

SNS Social Networking Service

SSA Social Security Administration

SSN Social Security Number

SSO Single Sign-On

TIN Tax Identification Number
UML Unified Modeling Language

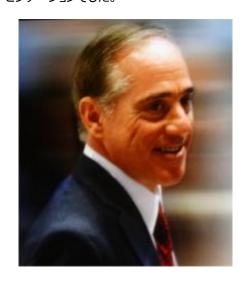
VLER Virtual Lifetime Electronic Record

WHO World Health Organization

XDS Cross Enterprise Document Sharing

おわりに

クロージングのキーノートは午前 2 セッション、午後 1 セッションでした。 午前の最初のセッションは退役軍人局長である David Shulkin 氏と軍の医療機関 (DHA:Defense Health Agency) ディレクターの Vice Admiral Raquel C. Bono 氏によるプレゼンテーションでした。





David Shulkin 氏

Vice Admiral Raquel C. Bono 氏

図表 CON-1: Closing Keynote 登壇者

Shulkin 氏は EHR 統合の苦労の歴史と今後の展開について、Cerner 社との強力なパートナシップで実現してきたことをアピールしていました。Bono 氏は VA の医療情報システムと国防省の医療情報システム、さらには個人にデータを提供するところまでを含めた「相互運用性の強化」を行うと明言していました。オープニングキーノートの Alpha 社や CMS のプレゼンもつながる「ヘルスケア情報を個人に返す」という大きな流れを感じることができました。

午前の2つめは、Ziplineの創設者兼CEOのKeller Rinaud氏によるものでした。道路が整備されていないアフリカルワンダの地で自動飛行機を使い血液製剤等をパラシュートで落として医療機関に届けることで多くの命を救っている若きアントレプレナーのプレゼン内容でした。「最初はこの1 枚の飛行機のスケッチから始まった。何もなかった。でも僕はいつも50年後の世界がどうなっていたらいいかを考えて今やることを決めているんだ。それは世界中の人々がヘルスケアにアクセスできる世の中だ!」で拍手喝采。これぞアメリカンドリーム!



Keller Rinaud 氏







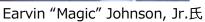


図表 CON-2: Keller Rinaud 氏によるプレゼンテーションの様子

大トリは、バスケット界のレジェンド、マジック・ジョンソン(Earvin "Magic" Johnson, Jr.)氏が登場しました。ビジネスマンとしても成功し、ロサンゼルス ドジャースのオーナでもある MJ は、用意されたステージの椅子には一度も座ることなく、司会者の段取りも全く気にせずひたすら会場を歩きまわり、「どこからき

たの?ロサンゼルス?あっそう じゃ一緒に写真をとろう!」というトークで最後の締めまで1人で仕切ってスタンディングオベーションでの終了となりました。スーパースターの貫禄を見せ付けられました。ちなみにお題は「ヘルスケアへの提言とリーダシップ」だったのですがこれこそがリーダシップ???









図表 CON-3: Earvin "Magic" Johnson, Jr.公演の様子

色々あってもアメリカは元気一杯。「アメリカンパワーは健在」を体感した HIMSS でした。 本報告書が会員各社の事業発展の一助となれば幸いです。

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