Exploring the Journey of Supply Chain Transformation in Three Global Health Systems

Dr. Anne Snowdon, BScN, MSc, PhD, FAAN
Framing for the Research

- **Medical Error** is now the 3rd Leading cause of death in USA, Canada and the UK. (Makary, 2016)

- **System Level Measurement:** patient outcomes linked to product use and care procedures does not exist; system infrastructure to support safety is under developed in the health sector.

- **Empirical Evidence of the Impact** of Supply Chain Implementation in Health Systems is very limited.

- **Goal:** To Create Empirical Evidence of the Health System Level Impact of Implementing UDI and supply chain implemented at the system level, in (three) countries.
Key Research Questions:

• What is the empirical evidence of system level impact of strategic supply chain initiatives in three global health systems?
• What are the strategies used to advance supply chain impact and outcomes?
• What are the key conditions for success?
• What is the evidence of return on investment?
• What is the influence of country context (Canada, the UK, and the USA)?
Canada: Alberta Health System Supply Chain Strategy
The responsibility for procurement, supply distribution, transportation, logistics, sourcing, and contracting is managed by Contracting, Procurement & Supply Management (CPSM) team.
Alberta Health Services Strategy: 2010

- Transition to a single provincial health service replacing 13 health units across the province

- Nine regional health units
- Alberta Cancer Board
- Alberta Alcohol and Drug Abuse Commission
- Alberta Mental Health Board
- EMS

Alberta had had a very public investigation of a series of preventable deaths in one of the major centres.
System-level opportunity to transform supply chain into a high performing, strategic management system to achieve the priorities of the AHS were facilitated by:

1) Alberta Government made the decision to merge all healthcare organizations, regions, and systems into a single governance structure for Alberta

2) Consultant reports identified the potential value in supply chain to release substantial savings.
Alberta Supply Chain Strategy

1) Implementation of Enterprise Resource Management Program (ERP) in 12 mon.;
2) Price harmonization, clinical engagement and new procurement strategy;
3) The creation of a province-wide product item master; and adverse event reporting system
4) Integration of supply chain into clinical programs and support teams.
Three primary objectives of the ERP strategy: 12 months implementation timeline for merging at least 10 different systems with the goal of achieving:

- data integrity
- Track and report on savings
- Manage clinical and Sourcing resources
- Ensuring product quality and overall best value

Outcomes: system implementation created challenges but it was “a blessing in disguise”

- difficulty in tracking orders and deliveries of products,
- Resultant supply orders not fulfilled when needed,

This demonstrated the impact of supply chain processes on clinical service delivery
- new appreciation for supply chain process and the overall risk in delivering care
Price Harmonization and New (Centralized) Procurement

• Consolidation of 10 regions followed by implementation of a province wide ERP system

• All contracts across the province consolidated, pricing standardized to lowest priced contract
  • $80,000,000 savings (one time)

• Province wide, online adverse event reporting system
3. Province-wide Item Master and Data Infrastructure

a. Consolidated every product inventory list across the province from over 30 different inventories, 300,000 items in the item master initially, significant duplication.

b. Item master “cleaned” to now include 100,000 product items categorized into functional categories using the UNSPC categorization methodology.

c. Work has now started on introducing GDSN data attributes and UDI capability. Started off with six partner Vendors who will publish entire product catalogue (in progress) through GHX (certified data pool provider) to AHS into a “staging data tool”, once product data is validated, then purchased products are uploaded into the ERP, other will remain in the Alberta Provincial Item Registry.

d. To validate the data, the data team works with vendors to meet integrity standards, and then product data is uploaded into a UDI portal. Now up to 83,000 products uploaded into the staging table.
3. Province-wide Item Master and Data Infrastructure

Vision for Item Data:
Accountability and evidence informed decisions including the ability to integrate with the Provincial Clinical Information System to enable Point of Care Scanning and Unique Device Identifiers with visibility from Supply Chain to Patient Portals

"you also want to be able to collect all this data to do retrospective studies, so this way I could actually then go back and do value based procurement."

Alberta is the first jurisdiction in Canada who will have a complete UDI-enabled product item master, a key enabler for a fully integrated supply chain and clinical information systems infrastructure for health systems.
4. Consolidated Procurement & Warehouse Strategy for the Province

- Consolidation of Procurement 32 sites to 4 major hubs - all Requisitions and Purchase Orders are processed with an electronic requisition penetration of over 90%

- Electronic Data Interchange (EDI) and “no touch Purchase Order” possible due to the cleansed item master and contract/price information resulting in staffing efficiencies

- Consolidated warehousing with the goal of greater visibility and control over inventory - reduced duplication, reduced waste, optimized inventory, reduced storage costs.

- 2 major Distribution Centres with satellite sites to accommodate for large geography and winter weather conditions

- Cost effective, efficient transportation and shipping, as suppliers have a fewer delivery points in the entire.

- Warehouse manages a mix of products, not just health products, engages local teams to ensure needs are met.
... “I think right now we’re up to about 426 sites that we support so we’ve serviced, including provisions of supplies to site management, to warehouse, local engagement, transportation, business continuity and a whole bunch of them. So we’ve got about 28 active inventories, so that’s about $38 million dollars’ worth that we run on a daily basis.”

Next Steps: Specialty teams and clinical inventories — OR, Cath. Lab, DI

“So the stock that we have in the areas where we manage the inventory significantly less write off of over stocking or expired products or those types of things. For the areas where we don’t we have visibility and, and these units are running their inventory off of spreadsheets.
5. Supply Chain Team Integration with Clinical Programs

Supply chain is evolving from a transactional model that is “reactive”, towards a strategic, integrated, operational strategy, that can be “predictive” when fully integrated into clinical areas and programs.

- “So really the strategy comes down to how we embed our people into their (clinical) teams and into their operations side. I have 3 people, all they do is diagnostic imaging contracts. Well, they meet with the docs on a regular basis, they’re a part of the team in diagnostic imaging, they treat them as their person, not some corporate person telling them what they have to do. So they’ve built a relationship really is what it comes down to, relationship management.”
Supply chain staff are embedded in the Clinical program teams:

- Provide data on utilization, product cost/patient indicator and value,
- Solicit feedback on new products, contracts and implementation strategies
- Fully understand team needs and support team decisions

... So really the strategy comes down to we embed our people into their teams and into their operations.”
Clinical Engagement Framework Hierarchy

**COMMODITY ENGAGEMENT**
- Zone Med/Surg Committees
- Zone Perioperative Committees

**SPECIALTY/SPECIFIC ENGAGEMENT**
- Standing Category Committees
- AHS RFX Committees/HP Subcommittees

**LEADERSHIP**
- Zone Leadership Councils

**Drivers**
- Quality
- Innovation
- Sustainability

**Outcomes**

**Forums**
- Non-specialty Devices - Generalists
  - Local decision-making
  - Inventory Add/Delete
  - Product Reviews & Evaluations
  - New Product Introductions

- Specialty Devices - Subject Matter Experts
  - Category reviews
  - Reviews, evaluations, and scoring (when applicable)
  - New Product Introductions
  - PLMD creation & management

- Senior Level Oversight
  - Sponsorship of committees
  - Executive advisory
  - Membership nominations
  - Issues management
  - Aligned decision-making
CPSM Operating budget (2016/17): $78M

Staff: 881.5 FTE serving 354 sites across the province

Annual Budget for Transformation work: $3 million
- Data Management & Reporting,
- System and Process Transformation
- Continuous Improvement and Project Management
<table>
<thead>
<tr>
<th>Activity</th>
<th>2015-16 Actual</th>
<th>2016-17 (Actual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase Order Value</td>
<td>$1,467,236,000</td>
<td>$1,617,482,830</td>
</tr>
<tr>
<td>Purchase Orders</td>
<td>385,988</td>
<td>399,988</td>
</tr>
<tr>
<td>Direct Buy Requisition to Purchase Order Cycle</td>
<td>1.1 days</td>
<td>0.5 days</td>
</tr>
<tr>
<td>Direct Buy Purchase Order to Receiving Cycle</td>
<td>16 days</td>
<td>12.5 days</td>
</tr>
<tr>
<td>Automated Purchase Orders (no touch end-to-end)</td>
<td>47%</td>
<td>52%</td>
</tr>
<tr>
<td>Online Requisitioning</td>
<td>91.0%</td>
<td>92.8%</td>
</tr>
<tr>
<td>Number of Contracts Completed</td>
<td>1857</td>
<td>2191</td>
</tr>
<tr>
<td>Value of Contracts Completed</td>
<td>$4,650,319,201</td>
<td>$4,020,003,266</td>
</tr>
<tr>
<td>Inventory Requisition Lines <strong>NEW</strong></td>
<td>7,501,206</td>
<td>6,876,481</td>
</tr>
<tr>
<td>Surplus Disposal- Landfill Avoidance</td>
<td>86%</td>
<td>91%</td>
</tr>
<tr>
<td>Product Quality &amp; Safety Notices</td>
<td>1027 (51%)</td>
<td>1088 (48%)</td>
</tr>
</tbody>
</table>
## CPSM Transactional Activity

### YTD Potential EDI POs as a % of Supplier Total POs and Actual EDI POs as a % of Potential EDI POs

<table>
<thead>
<tr>
<th></th>
<th>YTD 2015/16</th>
<th>YTD 2016/17</th>
<th>Q4 2016/17</th>
<th>Trend</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplier EDI Total POs</td>
<td>378,644</td>
<td>386,677</td>
<td>97,110</td>
<td>100%</td>
<td>↓</td>
</tr>
<tr>
<td>Potential EDI POs as a % of Supplier Total POs</td>
<td>86.3%</td>
<td>91.7%</td>
<td>84,583</td>
<td>87.1%</td>
<td>→</td>
</tr>
<tr>
<td>Actual EDI POs as a % of Potential EDI POs</td>
<td>92.9%</td>
<td>87.4%</td>
<td>77,658</td>
<td>91.8%</td>
<td>→</td>
</tr>
</tbody>
</table>

### YTD Inventory Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Edmonton</th>
<th>Calgary</th>
<th>North</th>
<th>Central</th>
<th>South</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requisition Lines *</td>
<td>3,220,480</td>
<td>1,957,675</td>
<td>557,302</td>
<td>584,671</td>
<td>556,353</td>
<td>6,876,481</td>
</tr>
<tr>
<td>Issue Value ($M)</td>
<td>$129.3</td>
<td>$110.8</td>
<td>$20.6</td>
<td>$16.3</td>
<td>$22.5</td>
<td>$299.5</td>
</tr>
<tr>
<td>Fill Rate</td>
<td>99.6%</td>
<td>99.3%</td>
<td>98.4%</td>
<td>99.2%</td>
<td>99.3%</td>
<td>99.4%</td>
</tr>
<tr>
<td>Avg Non-Pandemic Balance ($M)</td>
<td>$10.6</td>
<td>$12.2</td>
<td>$1.6</td>
<td>$1.7</td>
<td>$2.9</td>
<td>$29.1</td>
</tr>
<tr>
<td>Avg Pandemic Balance ($M)</td>
<td>$6.3</td>
<td>$2.3</td>
<td>N/A</td>
<td>N/A</td>
<td>$0.0</td>
<td>$8.7</td>
</tr>
<tr>
<td>Product Categories</td>
<td>AHS Spend ($Millions)</td>
<td>2010/11 Savings ($ Millions)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---------------------------------</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiology</td>
<td>45</td>
<td>7.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Housekeeping</td>
<td>15</td>
<td>1.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV supplies</td>
<td>50</td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lab supplies</td>
<td>40</td>
<td>1.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Medical surgery supplies</td>
<td>900</td>
<td>36.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Non-med surg supplies</td>
<td>200</td>
<td>8.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrition &amp; Food</td>
<td>55</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other spend including EMS</td>
<td>500</td>
<td>20.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmacy</td>
<td>210</td>
<td>17.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiology</td>
<td>18</td>
<td>(0.3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wound &amp; Skin Care</td>
<td>20</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Supplies</td>
<td>50</td>
<td>2.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPSM Sourcing Savings</td>
<td>2,103</td>
<td>102.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rebates</td>
<td></td>
<td>5.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total CPSM sourcing savings with rebates and CPI adjustment</strong></td>
<td><strong>2,103</strong></td>
<td><strong>107.5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Return on Investment:  7:1  
(inventory only savings, to date)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>COSTS (CPSM TEAM, IT INFRASTRUCTURE)</th>
<th>SAVINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009/10</td>
<td>$26,000,000 (Oracle install)</td>
<td>$29,200,000.00</td>
</tr>
<tr>
<td></td>
<td>(Note: this included accounts payable, costing and supply chain)</td>
<td>$80,000,000.00 (pricing standardization)</td>
</tr>
<tr>
<td></td>
<td>$ 3,000,000 (CPSM labour)</td>
<td></td>
</tr>
<tr>
<td>2010/11</td>
<td>$ 3,000,000 (CPSM labour)</td>
<td>$ 79,500,000.00</td>
</tr>
<tr>
<td>2011/12</td>
<td>$ 3,000,000 (CPSM labour)</td>
<td>$ 50,000,000.00</td>
</tr>
<tr>
<td>2012/13 (Q3)</td>
<td>$ 3,000,000 (CPSM labour)</td>
<td>$ 22,800,000.00</td>
</tr>
<tr>
<td>TOTAL</td>
<td><strong>$38,000,000.00</strong></td>
<td><strong>$261,500,000.00</strong></td>
</tr>
</tbody>
</table>
Next in Alberta:

• Clinical Inventories in High cost areas: Operating Room, Cath. Lab

• Integration of CPSM data into EPIC patient record for tracking and traceability of all patients, product UDI and outcomes

• Implementation of Patient Portal: all Albertans will have access to their care record, including products and procedures commencing in 2019.
## Comparison Province ROI (Quebec) - Hospital Profile

<table>
<thead>
<tr>
<th>Number of Hospitals total in QC 2013</th>
<th>Number of beds</th>
<th>Hospitals with Inventory Management Systems</th>
<th>% Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>150 and less</td>
<td>5</td>
<td>19%</td>
</tr>
<tr>
<td>22</td>
<td>150 to 300</td>
<td>5</td>
<td>23%</td>
</tr>
<tr>
<td>15</td>
<td>301 to 500</td>
<td>5</td>
<td>33%</td>
</tr>
<tr>
<td>9</td>
<td>500 +</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td>73</td>
<td>Total</td>
<td>18</td>
<td>25%</td>
</tr>
</tbody>
</table>

**Infrastructure Investment** (average 350 hospital) $1,225,000 - $1,575,000

**Annual Licensing Costs:** $105,000 to $140,000
### Provincial Comparison ROI: Inventory Management Only
(Quebec, population 8.2 million)

<table>
<thead>
<tr>
<th>Number of Hospitals</th>
<th>Number of beds</th>
<th>Inventory reduction (non-recurrent)</th>
<th>Shrinkage (recurrent)</th>
<th>Non-clinical gains (recurrent)</th>
<th>Clinical gains (recurrent)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>150 and less</td>
<td>$2,835,000.00</td>
<td>$5,292,000.00</td>
<td>$2,014,200.00</td>
<td>$28,266,964.20</td>
<td>$38,408,164.20</td>
</tr>
<tr>
<td>22</td>
<td>150 to 300</td>
<td>$4,312,000.00</td>
<td>$6,519,964.00</td>
<td>$2,790,425.00</td>
<td>$28,171,275.00</td>
<td>$41,793,664.00</td>
</tr>
<tr>
<td>15</td>
<td>301 to 500</td>
<td>$4,171,296.00</td>
<td>$5,736,165.00</td>
<td>$2,478,750.00</td>
<td>$28,436,250.00</td>
<td>$40,822,461.00</td>
</tr>
<tr>
<td>9</td>
<td>500 +</td>
<td>$5,211,777.60</td>
<td>$7,872,957.00</td>
<td>$3,300,187.50</td>
<td>$38,008,683.90</td>
<td>$54,393,606.00</td>
</tr>
<tr>
<td><strong>73</strong></td>
<td></td>
<td><strong>$16,530,073.60</strong></td>
<td><strong>$25,421,086.00</strong></td>
<td><strong>$10,583,562.50</strong></td>
<td><strong>$122,883,173.10</strong></td>
<td><strong>$175,417,895.20</strong></td>
</tr>
</tbody>
</table>
NHS: “The World’s First Learning Organization”

“Scan4Safety is a world first in healthcare – and a vital part of this government’s drive to make the NHS the safest and most transparent healthcare system in the world.”

Jeremy Hunt, Secretary of State for Health
Key Drivers

- Safety: Adverse events in hospitals ranks higher than traffic accidents, alcohol related deaths, ranks in the top 20 UK risk factors
- Driver: horsemeat contamination, breast implant recall
- Goal: Efficiency, and Transparency across the System to Support a “Learning Health Care System”

“There’s a denominator as well as a numerator. The numerator is the number of things that go wrong, the denominator is the phenomenal amount of work the NHS undertakes in a year.” (Dept. of Health Leader)
“Franchise model” of Implementation:

“So what we’ve developed is 3 enablers and 3 use cases, and we’ve got a document for each of them describing what you need to do, your goals and your time. So a very basic model of franchise if you like, so we can learn, and we can develop it, and then we can push that learning to the next 25 Trusts, and push that learning to the next 25, so it should be repeatable. The next 25 (Trusts) will be more learning, so if we go out with 65% of the learning now, we can maybe get up to 90%” (Department of Health Leader)
PROGRAMME OBJECTIVE

To improve patient safety, increase clinical productivity and realise operational efficiencies across the NHS.

By: Driving the adoption of international standards that are commonplace in other sectors into healthcare.

- **Right Patient**: Setting standards to know who our patients are and what treatment has been given.
- **Right Product**: Setting standards to make sure staff have what they need, when they need it.
- **Right Place**: Setting standards to make sure that products and patients are in the right place.
- **Right Process**: Setting standard ways of working to deliver better, repeatable patient care.
Current scope of the Scan4Safety project is focused on the application of three Primary Use Cases across six NHS acute trusts (hospitals), which act as ‘Demonstrator Sites’ to prove the benefits of adopting standards into healthcare.

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Use Cases</th>
<th>Organisational Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Safety</td>
<td>Iatrogenic conditions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>‘Never event’ reduction</td>
<td>Outcome Analytics</td>
</tr>
<tr>
<td>Clinical Productivity</td>
<td>Procedure ID Costing</td>
<td></td>
</tr>
<tr>
<td></td>
<td>eMedicines</td>
<td>Asset Management</td>
</tr>
<tr>
<td>Supply Chain Efficiency</td>
<td>Inventory Mgmt.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Recall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Purchase-to-Pay</td>
<td>154 x Acute NHS Trusts</td>
</tr>
</tbody>
</table>

Current Programme Scope
A STANDARDISED PROCESS – APPLICABLE FOR ALL

The approach and process followed by the Demonstrator Sites are repeatable and replicable across all other acute NHS trusts.

Key success characteristics of the Scan4Safety approach:

- A standardised, modular approach to the adoption of standards:
  - 4 x defined phases, within Level 1

- A set of core ‘milestones’ for attainment within each Phase
  - A core programme document setting out the milestones that trusts are required to meet by the end of each of the four phases

- Central grant funding:
  - Graduated distribution of funding to participating NHS hospitals upon satisfactory completion of each phase

- Governance structure that includes a Phase Review Panel, which:
  - is centrally located in the Department of Health and holds and releases the funds to participating trusts;
  - reviews the performance of participating NHS hospitals against stated milestones;
  - signs off each hospital one-by-one as it reaches the end of each phase.
INCREASING BREADTH – THE REST OF THE NHS ACUTE SECTOR

Indicative timeline for programme rollout across the other 148 acute trusts in the NHS, with supplier milestones

**New Trust Enrolment**
- 6
  - Demonstrator Sites x6 (Jan 2018)

**MD&IVD Supplier Milestones**
- 30 Sept: Assign a GTIN to: Class III, Implantables & Class D IVDs
- 30 Sept: Publish GTINs for: Class III, Implantables & Class D IVDs
- 30 Sept: Publish GTINs for: Class III, IIB, & Class B&C IVDs
- 30 Sept: Assign a GTIN to: Class IIA, Class IIB & Class B&C IVDs
- 30 Sept: Publish GTINs for: GDSN for Class I, & Class A IVDs

**Wave 1 x25**
- April 2019

**Wave 2(a) x25**
- October 2019
- 56

**Wave 2(b) x25**
- April 2020
- 106

**Wave 3(a) x25**
- October 2020
- 154

**Wave 3(b) x25**
- April 2021

**Wave 4 x23**
- April 2021

**KEY**
- Supplier Milestone
- Trust adoption curve

YEARS
- 2016
- 2017
- 2018
- 2019
- 2020
- 2021
- 2022
“What we do on the ward is we identify where the adverse event occurred, I’ve got the context of the patient, I know the staff, I’ll scan that code and it prompts them to collect the information, every one of those transactions has a time stamp, so we’ve got the ability to start pulling out reports, so straight away we’ve got the whole picture.” (NHS Team Leader)

Clinician Perspective:
“The real big plus for me as the clinician is I want to know where my patient is 24/7, 365, where they’ve been, what they’ve had done, all of that, by whom, I want all of that information to be automatically uploaded onto their electronic discharge note. And we should be able to do that and we can’t.” (NHS Clinician Leader)
Inventory Transparency to Support System Engagement:
“We’re going to know exactly what we’re buying, and in what volumes, and what we’re paying, and we’ll benchmark it based on the others, and then we can start working collaboratively, we’ll get better value.” (NHS Trust Leader)

“We figured that in the NHS hospital system, we think its 1.5 billion Pounds worth of inventory savings” (Department of Health Leader)
Integration of Supply Chain Processes into Clinical Programs: transition from “Adversaries” to “Collaborators”

Sense of Teamwork: “When I first came we’d sit in procurement and not go down, may occasionally speak on a phone or an email was safer… now clinicians come and sit next to us, they know who we are, we feel comfortable and we actually understand, and they do also, that we can make a difference” (NHS Procurement Leader)

Creating the Evidence: “The first thing when you show a group of clinicians what the results are, they will say, ‘we don’t believe you, we don’t believe the data’, …What the GS1 project does, is it starts to build the argument… it doesn’t mean that all variation is wrong, it just starts to build the argument” (NHS Clinician)

Speaking the Same Language: “this is equivalent to the cost of 6 nurses per year… if you are happy with it please use it, if not, then tell us why… I had just 2 heated emails, that’s how we changed 900 consultants… and we did it and I think it has been a very good” (NHS Procurement Leader)
Scan 4 Safety ROI: 4:1 (to date, inventory savings only)

- £4.4m actual savings; savings expected by March 2018 = £9m
  - (Dept. of Health)

- 4:1 ROI expected by year 3, annualized savings which only includes inventory waste reduction, additional savings emerging in clinician time saved; patient safety outcomes not yet accounted for.

- Patient care and patient safety Improvement:
  - Surgical teams now alerted if expired or recalled stock, recalls < 1 hours
    - 93% of implantable devices accurately tracked to patient;
    - Significant Clinician Time released back to patient care.
    - Product recalls now performed in under an hour
    - Reduced Litigation costs
Emerging Findings Globally

• **Patient Safety is the Key Driver of Supply Chain Strategy in Health Systems**: enables recall and traceability, NO measures of patient safety outcomes to date, patient safety OUTCOMES and cost savings have not yet been captured to date at the system level.

• **Inventory Automation yields substantial savings**: Ranges from 1:4 to 1:8 ROI on inventory savings alone—system may be able to “self fund” the strategy as savings are recurrent. Patient Safety savings are **NOT** yet accounted for and is anticipated to increase the ROI over time.

• **Integration of Supply Chain Team** with Clinical Program teams engages clinicians in a key decision making role, aligns procurement of products with clinical decisions for safety, cost, and standardization - emerging as a key condition for success.
Emerging Findings Globally

• **“Rate Limiting Step”:** accuracy and integrity of product data is slow to emerge as supplier implementation of GS1 standards and “clean” product data continues to emerge.
  • Global alignment of product information – a “minimal required data set” may accelerate industry progress
  • Multiple and different ”registries” and data bases emerging, alignment globally could enable and hasten progress

• **System Transparency:**
  • Brings transparency to cost, safety, quality in “real time”
  • Tracks and measures value to inform procurement, clinical care outcomes
  • Platform for innovation:
    • Product design, potentially innovation procurement
THE EMERGING SUPPLY CHAIN MATURITY PATHWAY

- **Patient traceability** to Product and Care = Visibility across Journey of Care > Reduction of Never-events;
- **Clinical team and Supply Chain Team** Integration >> informs clinician practice and standardization >>> Quality
- **System Value** > Predictive Analytics >> Proactive Intervention, Informed Innovation Platform
- **Product Traceability** enables faster recall, accurate case costing, safety surveillance
- **Inventory Visibility** >>> Optimization > Cost savings (4:1---- 8:1) self funding potential

Global Standards Adoption

Strategic Management Framework for Health Systems
Opportunities for the Future

a. Leverage supply chain traceability across the journey of care
   * enables innovation procurement, precision medicine to determine value
   * Creates opportunity for "real world evidence" in near real time
   * Engages consumers to self manage their health

b. Enables early surveillance across global borders, scale lessons learned faster

c. Enables predictive analytics and artificial intelligence modeling: identify risk proactively, create evidence of value at system level.
Why should you participate?

• This is a unique opportunity to profile your solution and/or strategy to a real-world health system challenge.

• Semi-finalists will receive valuable input and feedback on their product or service by an international team of experts and judges.

• The Winning Team will receive an invitation to present their solution at the SCAN Health Global Networking Event 2018, an event that gathers international experts from health systems, business, industry, government and academia.

• The Top 3 Teams will receive international exposure on the SCAN Health knowledge translation platform with over 100 partners from 5 countries: Canada, US, UK, the Netherlands and Australia, and will include publication and promotion on SCAN Health’s website and social media.
There are common outcomes across these countries: which are the most important?
- Automation of processes
- Integration with clinicians
- Leadership-Policy
- Data integration and Standards
Question 2

We are designing a Supply Chain Maturity Tool, in your opinion what is the most important outcome of an effective supply chain in health care?