

Rx-360

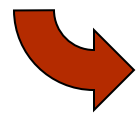
**An International Pharmaceutical
Supply Chain Consortium**

Working Together for Success

Eric L. Berg
Director of Supplier Quality
Amgen Inc.

Illicit Activity is Present and Threatens the Safety of Medicines

\$1000



Counterfeit
DVDs



Illegal
drugs



Counterfeit
medicine

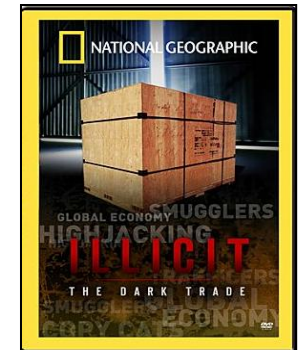


\$10,000

\$100,000

\$1,000,000

- The criminal element is present, active, and business savvy
- 'Benign' consumer actions may have tragic consequences



Tragic Consequences Not If... But When and Where



Tainted cough syrup kills 21 in Panama

CDC investigation traces mysterious deaths to industrial chemical

Ap Associated Press
updated 5:51 p.m. PT, Fri., Oct. 13,

INTERNATIONAL
Herald Tribune | Asia & Pacific
THE GLOBAL EDITION OF THE NEW YORK TIMES

China recalls infant formula

By Keith Bradsher

Published: September 12, 2008

The New York

November 26, 2008

WORLD BRIEFING | AFRICA

Nigeria: Contaminated Medicine Blamed for Deaths

By NYT



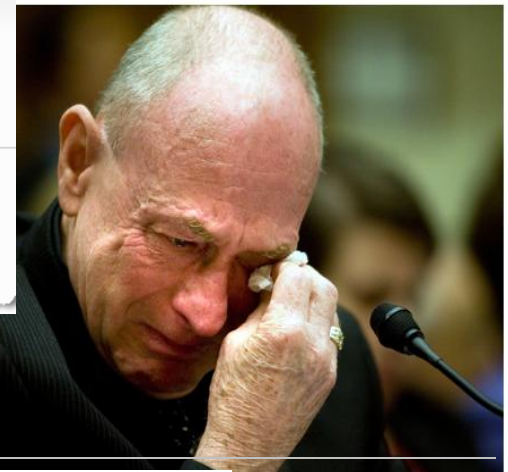
Melamine in pet food may not be accidental

Updated 4/20/2007 10:15 AM | Comments 85 | Recommend 54 | E-mail | Save | Print | Reprints & Permissions | RSS

By Elizabeth Weise and Julie Schmitz USA Today Mix it

The New York Times

Heparin Contamination May Have Been
... F.D.A. Says



CNN.com /US

updated 9:51 p.m. EST, Fri November 28, 2008

FDA sets 'safe' levels for melamine in baby formula

Last Year Dr. Woodcock Declared a 'Wake-up Call' to Industry... A Lot Has Happened Since

- PDA/FDA Pharmaceutical Ingredients Conference
 - Sep 10, 2008 in Washington DC
 - Dec 4, 2008 in San Diego, CA
 - Mar 10, 2009 in Munich, Germany
 - Jun 15, 2009 in Shanghai, China
- Mar 19, 2009 Dr. Woodcock and staff speak at annual DCAT meeting in New York
- Jun 5, 2009 RX-360 Consortium Launched

This call energized dialogue and action

130 Industry, Supplier, Regulatory, & Media Attendees at the June 5th Launch Meeting



A Call to Action

Martin VanTrieste, Amgen, VP Quality

US Department of Commerce

Jeff Gren, US DOC, Director

Legal Considerations

Mary Devlin Capizzi, Drinker, Biddle & Reath LLP

Three Audit Models Review

Gerard Pearce, SQA Services, VP

Fair Factories Clearinghouse

Marianne Voss, FFC

Supply Chain Risk Management

Vel Dhinagaravel, Beroe Consulting

Illicit: The Dark Trade

Helen Fitzwilliam, film director

Wrap up

Janeen Skutnik, Pfizer, Director

In Rx-360 We See That by Working Together We Can Make a Difference

Immediately

- Get organized
- Share information
- Adopt standard practices

In the Near Term

- Gain efficiencies and achieve greater oversight with supplier audits

Longer Term

- Deploy detection and prevention technologies

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Rx-360 Mission

Create and monitor a global quality system that meets the expectations of industry and regulators, that assures patient safety by enhancing product quality and authenticity throughout the supply chain

Patient safety must never be compromised as a competitive advantage

Rx-360 Operating Model

- Designed to meet competition law requirements
- Not intended to replace regulatory systems or oversight
- International not-for-profit organization
- Volunteer based
- Broad and inclusive membership
 - Small and large companies
 - Branded and generic
 - Suppliers, distributors, brokers and manufacturers
- Companies are members not individuals

Membership Dues Will Cover Organizational Overhead

- Legal Counsel
- Software Licenses
- IT System Maintenance
- IT System Development and Enhancements
- Administration Fees

LEAN and Efficient

Fear Not...

This Has Been Done Before

- Fair Factories Clearinghouse
 - Apparel industry
 - Monitors supplier practices to ensure social responsibility is upheld
- CHWMEG, Inc
 - Manufacturing and other "industrial" companies, many Pharmaceutical companies
 - Efficiently audit waste management. 217 member companies have saved \$27M



We are learning from other organizations
so that we can to accelerate Rx-360

Fear Not...

This Has Been Done Before

- C.A.S.E.
 - Airline Industry, started in 1964

Welcome to C.A.S.E

Written by Administrator

Saturday, 12 June 2004

C.A.S.E. is a **Nonprofit Coalition of Industrial Companies** dedicated to:

- ▶ Exchanging and Publishing Non-Prejudicial Supplier Data
- ▶ Reducing the Proliferation of Redundant Supplier Assessments
- ▶ Reducing Supplier Management Costs

Governed by a Statement of Principles and Bylaws, Our **Goal** is to Provide Data with which you can make Informed Supplier Selections



We are learning from other organizations
so that we can to accelerate Rx-360

Rx-360 Will Grow in Phases

Phase 1: Create infrastructure

- ✓ Established website and news flash capability
- ✓ Incorporated as an international non-profit
- ✓ Appointed interim Board of Directors
- ❑ In progress: accepting membership applications
- ❑ In progress: working groups

Phase 2: Shared audit activity

Phase 3: Technology

Since April 2009 Rx-360 Has Distributed Industry News to Registered Users

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Rx-360 News Flash

A Non-Profit Organization
Brussels, Belgium and Washington, D.C.

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Rx-360 News Flash

A Nonprofit Organization
Brussels, Belgium and Washington, D.C.
www.Rx-360.org

06-August-2009

[From the United Ne](#)

Counterfeit medicine is a global problem. While counterfeit medicine is a global problem, treatment, but the dangerous diseases become the target including antibiotics fight malaria and tuberculosis pharmaceutical products contain little or no active ingredients particularly from South America and the local pharmacies.

In a newly released *and the Rule of Law*

The US FDA issued guidance today concerning counterfeit pharmaceutical products.

FDA Issues Draft Guidance on Anticounterfeiting Focus on physical characteristics

The U.S. Food and Drug Administration issued guidance on the use of inks and chemical identifiers (PCID) on pharmaceutical products more difficult to counterfeit.

The Danish Medicines Agency (DMA) offers a list of questions and answers dealing with the GMP requirements on active pharmaceutical ingredients (APIs), which highlights the acceptability of third party audits. This list can be found at their website <http://www.dkma.dk/1024/visUKLSArtikel.asp?artikelID=8127>

One Q&A stresses that

"...the DMA will accept Third-Party Audit reports."

Question Number 6 asks: "What measures does the Danish Medicines Agency accept in respect of audit of API-manufacturers?"

Rx-360.org Shares Information That Can Benefit Us All: **Acetonitrile Method**

Determination of Adulteration of Acetonitrile using Gas Chromatography with Thermal Conductivity Detection



An International Pharmaceutical Supply Chain Consortium

[Click to view this email in a browser](#)

Rx-360 News Flash

A Non-Profit Organization
Brussels, Belgium and Washington, D.C.

www.Rx-360.org

20-May-2009

You've heard discussions recently on how unethical players and criminals will exploit opportunities, such as supply chain shortages, for their personal economic gain. Specifically you've heard us talk about how the acetonitrile shortage that we face today can provide one such opportunity. Reports indicate that the cost of acetonitrile has increased 10 fold recently due to the shortage, making this product an even more attractive target of economically motivated adulteration.

In light of this information, a group of intelligent individuals got together and discussed possible methods to dilute acetonitrile or to substitute another chemical for acetonitrile to make illicit profits, in order to be prepared for any possible adulteration. Using this information, they developed an analytical method to detect the potential for economically motivated adulteration to assist users of acetonitrile. This new analytical method is available on www.Rx-360.org, and can be downloaded free of charge.

Determination of adulteration of acetonitrile by GC-TCD

Kiyoshi Fujimoto, Hans Lee and Yasser Nashed-Samuel

May 18th 2009

Department of Formulation and Analytical Resources, Amgen Inc.,
One Amgen Center Drive, Thousand Oaks, CA 91320

Overview

To address the possibility that supplies of acetonitrile may be diluted or adulterated to meet the shortfalls resulting from adown in its manufacture, we have developed an analytical method to screen incoming batches for adulteration. We investigated the applicability of our own Thermomix Instrument (FTIR) spectroscopy, Near Infrared (NIR) spectroscopy and Gas Chromatography with Thermal Conductivity Detection (GC-TCD) to detect potential adulterants including water, alcohols, organic solvents and materials associated with the production of acetonitrile. These methods were investigated for their ease of implementation in our QC labs, for their ability to identify and quantify potential adulterants, and to results indicate that the most appropriate method to meet our requirements is GC-TCD. A description of this method is provided.

Acknowledgements

The authors would like to thank Oussama Chen for the NIR assessment, Chantal Vee and Hong Shan for the FTIR assessment, and Gary Rogers for coordinating the overall project.

Amgen Inc., acetonitrile adulteration method

Page 1

Determining adulteration in acetonitrile by GC-TCD

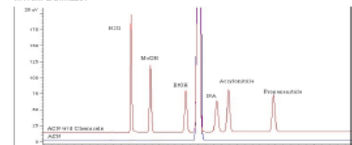
Sample Prep: Acetonitrile samples were analyzed neat without dilution. For precision and spiking studies, acetonitrile was spiked to contain 1-20% of each adulterant (water, ethanol, methanol, isopropyl alcohol, acrylonitrile, and propylene glycol).

GC-TCD Method: An Agilent 6890 GC equipped with the liquid autosampler, split/splitless inlet, HP-1 column (85M, 30m long by 530 um, 10 x 3um film), and TCD detector was used to analyze the acetonitrile samples. Acetonitrile samples were injected at 0.2 µL with a split ratio of 1:50 with the inlet temperature set to 240 °C. The flow rate was held constant at 10mL/min. The initial column temperature was held at 40 °C for 0.5 min, then ramped to 210 °C at a rate of 25 °C/min, and then held at 210 °C for 3 minutes. The detector temperature, reference flow, and make up flow were set to 280 °C, 48 mL/min, and 2mL/min, respectively.

Results: Acetonitrile spiked to contain 1-20% (w/w) of water, methanol, ethanol, isopropyl alcohol, acrylonitrile, and propylene glycol were analyzed by GC-TCD. Peaks corresponding to each potential adulterant were well resolved (Figure 1). Peak retention time and area/total area (w/w values of: 1% and < 5%, respectively) for each adulterant at 1% (w/w) spiked levels. Five point calibration curves were linear (1-20% (w/w) for each adulterant) and R² values > 0.999. The spike recovery of each adulterant in acetonitrile was between 93-100% of the actual spiked concentration.

Conclusion: The GC-TCD method is capable of resolving the six potential adulterants.

Figure 1. GC-TCD chromatograms of neat acetonitrile (ACN) and acetonitrile spiked with six chemicals.



Amgen Inc., acetonitrile adulteration method

Page 2

Rx-360.org Shares Information That Can Benefit Us All: **Swine Flu Impact Analysis**

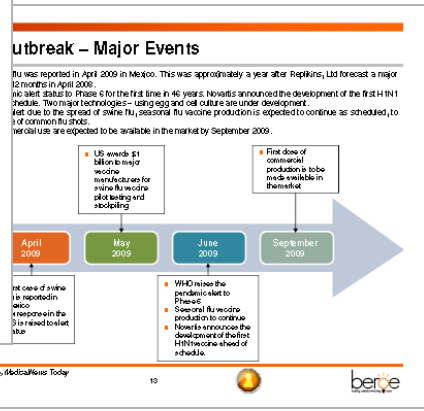
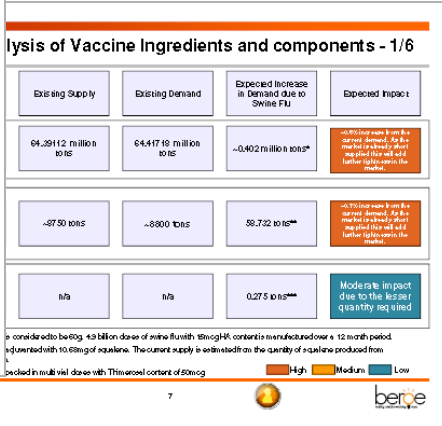
Impact of Swine Flu on The Pharmaceutical Industry

Title: [Impact of Swine Flu on The Pharmaceutical Industry](#)

Category: Surveillance

Modified Date: 8/20/2009

[Download](#)



Standards Are Required to Create a Level Playing Field

- Identify existing best practices
- Endorse best practices
- Implement quickly
- Continuously refine after successful implementation

“Perfection is the enemy of good.” – M. VanTrieste

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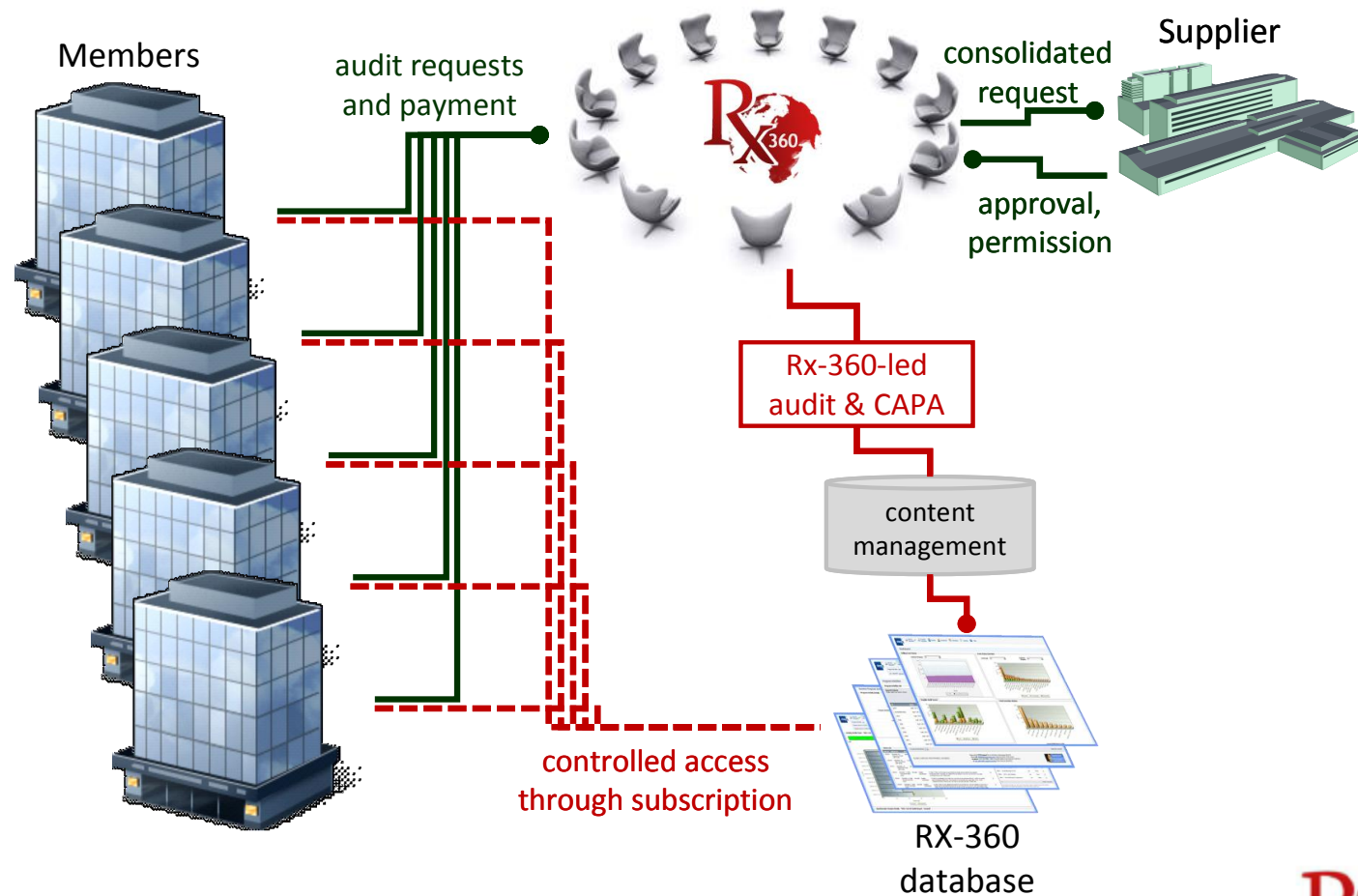
- Deploy detection and prevention technologies

Sharing Supplier Audits Will Increase Compliance, Quality and Efficiency

1. **Sponsor** audits are initiated by a single pharmaceutical firm
2. **Audits led by Rx-360** are initiated by the consortium based on input from all members
3. **Subscription** audits are existing audits that are redacted and placed into a secure database for member access

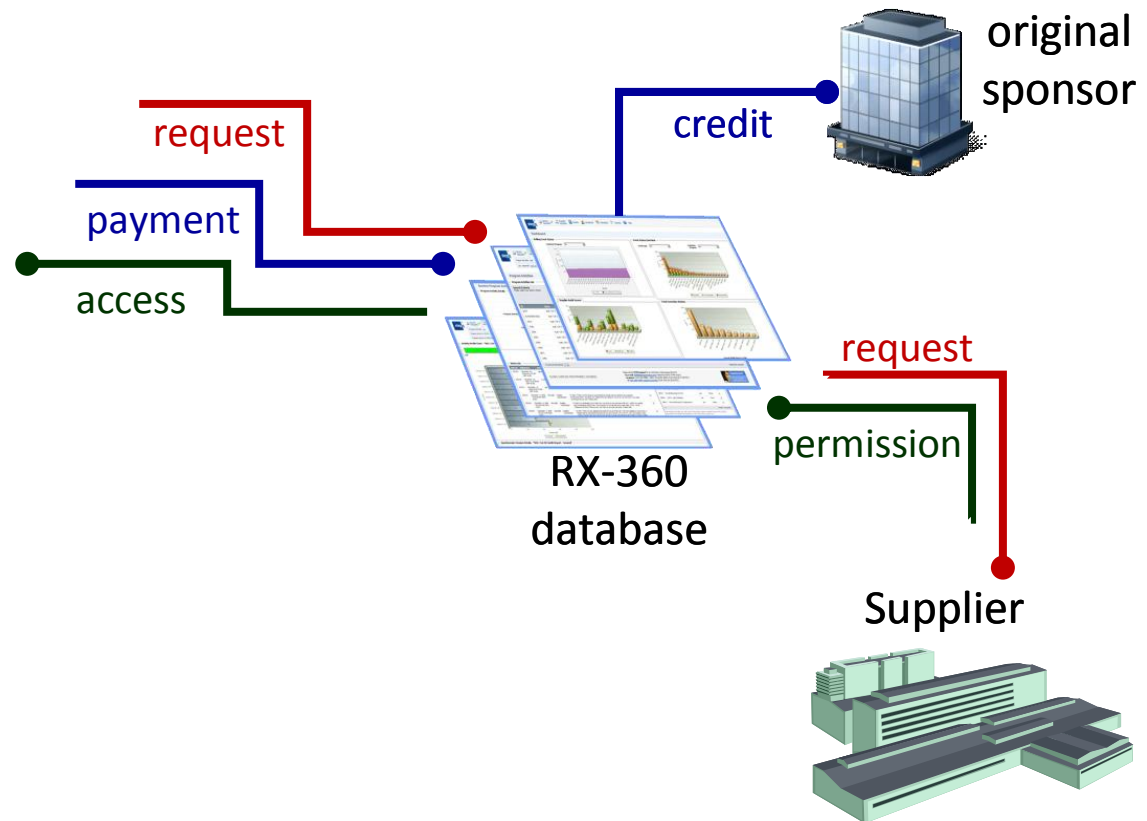
Numerous 1 or 2 day audits will be replaced with fewer & more thorough audits thus eliminating “Audit Fatigue”

How Audits Led by Rx-360 Are Envisioned to Work



How Subscription Audits Are Envisioned to Work

1. Find audit
2. Subscribe to audit
3. Access audit details and related actions
4. Receive status updates
5. Track on your dashboard



Standard Tools Are Foundational for the Audit Models

- GMPs (CFR and EU), ICH Q7/10 and other tools, checklists, templates
- Auditor certification and training
- Content management – consistency, accuracy, depth, duration of validity
- Audit coordination and distribution
- Database maintenance

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Value Proposition

Rx-360 Is Pursuing a Win-Win for All Parties

- Confidence for our **Patients**
- Safety, Security, and Quality for **Regulators**
- Efficiency for **Suppliers**
- Safety, Security, Quality, Knowledge, and Efficiency for **Biotech & Pharma Companies**
- Delighted Members for **Professional Organizations**

Rx-360 Has Momentum

- ✓ **Mar '09** Launched www.Rx-360.org web-site
- ✓ **Apr '09** Initiated news distribution to registered users
- ✓ **June '09** Incorporated Rx-360 as a 501(c)(6) non-profit
- ✓ **June '09** US launch event in Washington D.C.
- ✓ **July '09** Appoint interim Board of Directors
- ☐ **Nov '09** Europe launch event in UK
- ☐ **Ongoing** Bring on member companies, target is 50
- ☐ **Fall '09** Survey member companies on audit schedules
- ☐ **Q4 '09** Conduct audit pilot

Companies that Have Signed On Thus Far

Insert names of 29 organizations signed up as
of October 15, 2009

Register as a User on www.Rx-360.org and Receive Valuable Industry News

Address: <http://www.rx-360.org/>

Become an Rx-360 Member Today!
Rx-360 recently achieved a major milestone and is now incorporated as a non-profit. Membership agreements are available for downloading on the membership page.

[Home](#) [Membership](#) [News](#) [Report Suspect Activities](#) [About Rx-360](#)

[Home](#)

Our Mission
Create and monitor a global quality system that meets the expectations of industry and regulators that assures patient safety by enhancing product quality and authenticity throughout the supply chain

Important Meetings

2009 PDA/FDA Joint Regulatory Conference
Securing the Future of Medical Product Quality: A 2020 Vision
September 14-18, 2009 | Washington, D.C.

The PDA/FDA Joint Regulatory Conference offers the unique opportunity for you to join FDA representatives and industry experts in **face-to-face dialogues**. Each year, FDA speakers provide updates on the current

User Registration

*Note: Membership to this portal is Private. Once your account information has been submitted, the portal Administrator will be notified and your application will be subjected to a screening procedure. If your application is authorized, you will receive notification of your access to the portal environment. All fields marked with a red asterisk are required. [Home](#) - Registration may take several seconds. Once you click the Register button please wait until the system responds.

User Name *

First Name *

Last Name *

Display Name *

Email Address *

Enter a password:

Password *

Confirm Password *

Thank you

Eric L. Berg
Director of Supplier Quality
Amgen Inc.

eberg@amgen.com