Department of Medicine
Quality Improvement Workshop - Part 1

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Patti Macolino RN MSN ASQ LSSBB
October 13, 2016
Goal

Support the Department of Medicine fellowship training programs and faculty in educating and engaging their fellows in meaningful quality improvement work in their specialty.
Introductions

Introduce yourself to your tablemates and share what, if any, experience you have in quality improvement work.
The Internal Medicine Milestone Project

A Joint Initiative of
The Accreditation Council for Graduate Medical Education and
The American Board of Internal Medicine

American Board of Internal Medicine®

CMS
CENTERS FOR MEDICARE & MEDICAID SERVICES

ABMS MOC®

Clinical Learning Environment Review (CLER)
CLER Pathways to Excellence
Expectations for an optimal clinical learning environment to achieve safe and high quality patient care

Accreditation Council for Graduate Medical Education
“Everyone in healthcare has two jobs to do when they come to work everyday: To do their work, and improve the work that they do.”

Better Patient Outcomes

Better Professional Development

EVERYONE

Better Systems

Specific Learning Objectives

• Utilize a structured approach to quality improvement work

• Identify and apply QI tools in order to understand the current condition and root causes of a quality problem in your healthcare setting

• Plan the next steps to move your improvement work forward
44-98,000 deaths per year from medical errors

**Goals**

Healthcare that is:
- Safe
- Effective
- Equitable
- Efficient
- Timely
- Patient-Centered
Closing the Quality “Gap”

Scientific understanding

Patient care

Progress

Time

Gap
# QI vs. Research

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<thead>
<tr>
<th>Primary goal</th>
<th>Quality Improvement</th>
<th>Traditional Research</th>
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<tbody>
<tr>
<td></td>
<td>Local improvement in a process or outcome</td>
<td>Generalizable knowledge</td>
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## QI vs. Research

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<tr>
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<th>Quality Improvement</th>
<th>Traditional Research</th>
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<tr>
<td><strong>Primary goal</strong></td>
<td>Local improvement in process or outcome</td>
<td>Generalizable knowledge</td>
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<tr>
<td><strong>Possible Secondary Goal</strong></td>
<td>Generalizable knowledge</td>
<td>Local improvement in process or outcome</td>
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<tr>
<td><strong>Scope</strong></td>
<td>Typically within existing standards of care</td>
<td>Often testing new methods and models</td>
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<td><strong>Evaluation</strong></td>
<td>Hypothesis driven with systematic data collection</td>
<td>Hypothesis driven with systematic data collection</td>
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<td><strong>IRB required</strong></td>
<td>No</td>
<td>Yes</td>
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“All improvement requires change, but not all change results in improvement...”
We All Need Frameworks

Organize and guide work

Provides a roadmap for teachers and learners

H & P

Research abstract

Curriculum
Penn’s Framework for QI:

- **A3** is a “LEAN” QI tool
- First designed and used at Toyota
- A3 = industry name for a 11.7 x 16.5 paper.
- Provides a stepwise framework to problem solving
# Anatomy of an A3 Roadmap

<table>
<thead>
<tr>
<th>Problem Statement</th>
<th>Target Condition</th>
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<tbody>
<tr>
<td>Current Condition</td>
<td>Propose &amp; <strong>Test</strong> Countermeasures</td>
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<tr>
<td>Root Causes</td>
<td>Metrics/Results</td>
</tr>
<tr>
<td></td>
<td>Make it Standard Work/Implement Successful Countermeasures</td>
</tr>
</tbody>
</table>

**Define**
- Problem Statement
- Current Condition

**Measure**
- Root Causes

**Analyze**
- Root Causes

**Plan & Do**
- Propose & Test Countermeasures
- Metrics/Results

**Control & Study**
- Make it Standard Work/Implement Successful Countermeasures
A3 – Prevents Jumping to the Solution

“Before I state the problem, are there any solutions?”
Anatomy of an A3 Roadmap

- **Problem Statement**
  - **Problem**

- **Current Condition**

- **Root Causes**

- **Target Condition / Aim Statement**
  - **Propose & Test Countermeasures**

- **Solution**

- **Metrics/Results**

- **Make it Standard Work/Implement Successful Countermeasures**

Executive Sponsor Initial Approval (signature and date):

Executive Sponsor Final Approval (signature and date):
## A3 Framework

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The Problem (or Opportunity) Statement

- Good Problem statements should answer the following questions:
  - **What** is occurring?
  - **Where** is the problem?
  - **When** did the problem start? (or when did you notice it)
  - **Extent (Gap)** of the problem or opportunity
  - Very **patient/customer focused**
  - Address business case, when applicable
  - Show why a change is needed

- Good problem statements make it easier for others to understand and *care* about the problem you wish to solve
Critique this Problem Statement

There are too many patients with bad colonoscopy preps leading to an increased number of interval colonoscopies being recommended.
Better Problem Statement
(note that this was v6 for this QI team!)

From January through July 2014 in the PCAM Endoscopy Unit, 15% of patients undergoing colonoscopy had inadequate prep quality leading to patients’ needing to undergo an additional, early, repeat procedures. This rate is outside the standard benchmark for quality and may be the basis for negative reimbursement incentives.
Scope

The scope assists in defining the work and consists of two questions:

- What is the earliest step in the process and the last step in the process that falls into this improvement cycle?
  - This bounds the work for the team and speeds success
  - Example: Is it the entire peri-operative process or only from patient registration through to hand-off to OR team?
  - Colonoscopy Example: only focused on prep quality not re-designing front desk clerk workflow in GI

- What is included and excluded in the work?
  - Included: elective outpatient colonoscopies in PCAM
  - Excluded: inpatient colonoscopies
Small Group Activity

- **Draft Version 1 of your problem statement with your team members**: 7 minutes

- **Share with larger group**
## A3 Framework

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<th>Current Condition</th>
<th>Propose and Test Countermeasures</th>
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<td>Voice of the Customer</td>
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<tr>
<td>Process Mapping</td>
<td></td>
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<tr>
<td>Gathering data</td>
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</tbody>
</table>

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<th>Root Causes</th>
<th>Results/Metrics</th>
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<td>Make it Standard Work</td>
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</table>

- **Current Condition**: Voice of the Customer, Process Mapping, Gathering data
- **Propose and Test Countermeasures**: 
- **Results/Metrics**: 
- **Make it Standard Work**:
Stakeholder Analysis Tool

- Critical tool for QI work

- Who has a “stake” in the problem that you wish to improve?
  - Do you anticipate them to be a supporter or not?

- Complete at the beginning stages of your project work and come back to it over time
# Stakeholder Analysis

<table>
<thead>
<tr>
<th>Names or Group</th>
<th>Strongly Against</th>
<th>Moderately Against</th>
<th>Neutral</th>
<th>Moderately Supportive</th>
<th>Strongly Supportive</th>
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<tr>
<td>Materials Mgmt</td>
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<td></td>
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<td>X</td>
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<tr>
<td>Anesthesia Techs</td>
<td>X</td>
<td></td>
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<td>O</td>
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<tr>
<td>Floor RNs (F5)</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>O</td>
</tr>
<tr>
<td>Clinical Directors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
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<tr>
<td>PACU Nursing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Anesthesia Residents</td>
<td>X</td>
<td></td>
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<td>O</td>
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<tr>
<td>Anesthesia Attendings</td>
<td>X</td>
<td></td>
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<td>O</td>
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</tbody>
</table>
# Resistance Analysis

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Reasons for Resistance</th>
<th>Level of Resistance (high, medium, low)</th>
<th>Type of Resistance (technical, political, cultural)</th>
<th>Strategy for dealing with Resistance</th>
</tr>
</thead>
</table>

**To begin:** In this column, list the stakeholders with an arrow (gap) identified on your Resistance Analysis.

**When complete:** Take the strategy column and insert it into the “What” column on your WWW.
# Resistance Analysis

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</thead>
<tbody>
<tr>
<td>Anesthesia Techs</td>
<td>Concerned there will be more work overnight and already short staffed</td>
<td>M</td>
<td>T</td>
<td>Include influential tech on team to ensure process created will work and that all concerns are addressed.</td>
</tr>
<tr>
<td>Floor RNs (F5)</td>
<td>Don’t want to send pumps down to OR fearful they will not get them back adds to the overall fear of not having a pump</td>
<td>H</td>
<td>T, C</td>
<td>Include nursing in par level discussion, escalation plan, 1:1’s scheduled give individual names and phones for support. Include CD’s in driving the new process.</td>
</tr>
<tr>
<td>Clinical Directors</td>
<td>They want to be supportive of their nurses needs. Very aware of “pump fear”</td>
<td>L</td>
<td>T</td>
<td>Meet with CD’s to review process, benefits, metric and escalation protocol. Request them to help drive this initiative.</td>
</tr>
<tr>
<td>Anesthesia Residents</td>
<td>More work, it’s considered “easier” and how “it’s done” to just use a new pump</td>
<td>H</td>
<td>T</td>
<td>Bring the information to them from a higher level and include the “why” it’s important along with the escalation plan.</td>
</tr>
<tr>
<td>Anesthesia Attendings</td>
<td>It’s a change plus they have been trying to get more (upgraded) pumps; feel that the number of pumps is the issue rather than the process</td>
<td>L</td>
<td>P</td>
<td>Meet with attendings and explain the new process, escalation plan, metric and the benefit. Invite an attending to be a clinical leader for the project.</td>
</tr>
</tbody>
</table>
# Stakeholder Analysis vs Quality Improvement Team

## Problem Definition*

*Do not include the solution or your improvement ideas, just state the problem.

## Problem Scope‡

‡List what and who will be included and excluded in terms of location, types of patients, etc. Briefly describe the start and end points of the process that you wish to improve.

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## Quality Improvement Team

<table>
<thead>
<tr>
<th>Role</th>
<th>Description</th>
<th>Name of Individual(s)</th>
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</thead>
</table>
| **Program Mentor**    | • Coaches the team in use of improvement methods and appropriate analytical tools  
                        • Connects team with appropriate people & resources to facilitate project work | Jen Myers & Patti Macalino  |
| **Faculty Mentor**    | • Coaches the team in use of the improvement model and appropriate analytical tools  
                        • Meets with QI project leader(s) in person or via phone call at least 2x/month  
                        • Assists the QI project leader(s) in planning team activities and meetings  
                        • Engages and communicates with divisional faculty about the project |                       |
| **QI Project Leader(s)** | • Primary responsibility: to lead the team  
                        • Schedules and plans team meetings. We suggest a minimum of monthly  
                        • Keeps official records of team activities and project work / data collected  
                        • Oversees project and assigns tasks to team members for project completion |                       |
| **Team Members**       | • Completes tasks towards project completion  
                        • Participates fully in workshop sessions and additional team meetings  
                        • Meet with QI project leaders monthly at a minimum |                       |
| **Clinical Champions** | • Provide support and guidance to the Project Leader(s)  
                        • Often a physician leader and/or nurse or office manager of project location  
                        • Many QI project teams have several champions |                       |

*The faculty mentor can decide how best to assign the QI Project Leaders. Some ideas include 1) faculty mentor and 1 fellow are co-QI project team leaders; 2) 2 fellows volunteer to be QI project team leaders; 3) Occasionally, groups wish to share this responsibility among the entire team. While this is possible, it can be challenging due to dispersed accountability for leading the team.
Voice of the Customer (VOC)

- Good problems are defined by going out and seeing for ourselves...

- Have Humility:
  - Collect stories
  - Embrace ignorance
  - Ask non-leading questions

- Do not need 100 VOC, 5-10 is plenty to start, saturation of themes
Collecting VOC

- What’s working well?
- What’s not working well?
- What would you change?

- Collate answers/identify themes
Process Maps / Flow Charts

**What You Think It is**

- [Flowchart]

**What It Actually is . . .**

- [Flowchart]

**What You Would Like it to Be . . .**

- [Flowchart]

Often difficult to persuade people that their BELIEF ≠ REALITY ON THE GROUND

You MUST GO AND SEE to verify what is really happening out there

The struggle is that this is where everyone wants to start.
6 West Inpatient Telemetry – High-Level Process Map

- **Report Given to Admitting Medicine Provider on 6W**
- **Patient Admitted to 6W and Placed on Telemetry**
- **Provider Places Telemetry Order into CPRS**
- **Telemetry Order Expires at 10am the Next Day (and subsequently every 24hrs)**
- **CPRS Alert Sent to Provider Indicating Need for Order Renewal**
- **Order Not Renewed – Telemetry Continued**
- **MD’s often not aware of appropriate telemetry guidelines**
- **Physician Reviews Alert - Telemetry Discontinued**
- **Order often renewed without a true assessment of continued need**
- **Physician Reviews Alert - Telemetry Reordered**
- **MD’s don’t regularly reassess telemetry need during daily rounds**
- **Telemetry often continued without active orders**
- **RN’s often don’t feel empowered to “speak up” about expired orders**
- **If 6W full, patient admitted to ICU**
- **Resident MD’s rounding at this time and often not near a computer**
“Go and See” – Guidelines for Observation

- Agree on a start point and end point for observation, e.g. patient enters the clinic

- Make sure you introduce yourself and inform others of what it is you are doing and why.

- Try to talk to patients and/or staff when they are waiting, to avoid prolonging their time. Can sometimes combine VOC with process map observations

- Always do multiple observation sessions.

- Observers should summarize lessons learned and present them to the whole team. Discuss the results.
Data

GET ALL THE INFORMATION YOU CAN, WE'LL THINK OF A USE FOR IT LATER.
You Don’t Need Big Data

- You need “just enough to know” data

- Goal of data collection in the current condition is:
  - Is this a problem?
  - If so, how big of a problem?
  - Where is the problem?
Gathering Data – 2 Types

**Existing Data**

- Data Sources:
  1. EHR (Penn Data Store)
  2. Pre-existing Quality Data
  3. Other

**New Data**

- Data Sources:
  1. Observations
  2. Surveys
  3. Chart Reviews
Small Group Activity

- Discuss the Data Collection Plan for understanding the current state of your quality problem
## Defining Your Current State – Data Collection Plan

### Voice of the Customer: Who Do You Need to Talk to?

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### Process Mapping: What process(es) could you observe?

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### Data

What data already exists that would be important to look at?

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What data could you collect?

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<tbody>
<tr>
<td><strong>Problem Statement</strong> <em>(Purpose)</em></td>
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<td>--------------------------------</td>
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<tr>
<td>Current Condition <em>(Process)</em></td>
</tr>
<tr>
<td><strong>Root Causes</strong> <em>(Probable Causes)</em></td>
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<tr>
<td>Fishbone Diagram</td>
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<tr>
<td>5-whys</td>
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<tr>
<td>Pareto Chart</td>
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</table>
Brainstorming Tool for Root Causes: Fishbone Diagram
Root Cause contributing to prolonged LOS and late discharge time

Prior Authorization
- Late day requests have next day determinations
- Payers prior auth requests vary-electronic, vs paper fax
- Prior can only be obtained once it is medically stable
- Payers have different clinical requirements

Communication
- Family not notified patient transferring to SNF
- Patient/family unfamiliar with area SNF located
  - Social worker notified by medical team late in day medical readiness
- Social worker not at rounds

Readiness to go
- SCM order-set not used correctly
  - Patients not ready-eating breakfast, still in bed
  - Screening tool not available
- Order not placed in timely fashion
- Consult not appropriate for patient

Physical Therapy/Occupational therapy consult

Prolonged LOS Late day discharges
5 Whys: A Quality Improvement Tool

Why were you late to the meeting today, Jen?
   I was preparing for 2 other meetings that I have this afternoon and lost track of time (symptom)

Why was that?
   I didn’t have time last night to prepare (excuse)

Why was that?
   I was working on another deadline and didn’t have time (blame)

Why was that?
   Because I have too many projects at work (root cause)

Why is that?
   Because I have trouble saying “no” (true root cause)
5 Whys
(use separately or in concert with Fishbone)

• The simple idea is to keep asking "Why" (usually five times) to ensure that the root cause(s) of a problem are fully understood.

• The reasoning is that the result of each time the Why is asked gives a different answer, in essence peeling back the onion as follows:

  – First Why—Symptom
  – Second Why—Excuse
  – Third Why—Blame
  – Fourth Why—Cause
  – Fifth Why—Root Cause
Pareto Effect 80/20 Rule

Introducing “Alfred PARETO”

- In 1879, the famous Italian economist Alfred Pareto, noticed that 80% of Italy’s wealth was controlled by 20% of the population.

- This concept is known as “Pareto’s Law” or “Pareto’s Rule” or “Pareto Principle” or “Principle of imbalance” or simply “The 80/20 Rule”.

- Subsequently, people in various disciplines and professions noticed that this same 80/20 applied, in a broad way, to a wide range of phenomena. Dr. Joseph Juran also recognized this concept as universal that could be applied to many fields. He coined the term **vital few** and **useful many**.
Pareto Chart

- Specific type of histogram that ranks causes by their overall influence.
- Assists in prioritizing causes or corrective actions as the issues with the greatest impact are displayed in order – left to right.
- Pareto’s Law states that a relatively small number of causes will typically produce a large majority of the problems or defects. This is commonly known as the 80/20 rule, where 80% of the problems are due to 20% of the causes.

![Pareto Diagram]

- **x axis= Causes**
- **y axis= Problems/Defects**
Pareto Chart (no Pareto Effect)
Histogram = Frequency

- A type of bar chart showing a distribution of variables.
- Represents each attribute or characteristic as a column and the frequency of each attribute or characteristic occurring as the height of the column – look for patterns, helps visualize current state.
Establish Team Meetings

Create Project Management Plan

<table>
<thead>
<tr>
<th>Who</th>
<th>What</th>
<th>When</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sara and John</td>
<td>Interview nurses</td>
<td>By 11/1/16</td>
<td>In progress</td>
</tr>
<tr>
<td>Lauren</td>
<td>Observe process and make v1 of process map</td>
<td>Week of 10/17 in clinic</td>
<td></td>
</tr>
<tr>
<td>Mike</td>
<td>Discuss with faculty</td>
<td>At Oct faculty meeting 10/24</td>
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Our Goal: Help You Put Structure Around this Work Between Now and Jan 19th

- Determine how often and when your QI team will meet

- Complete your Stakeholder Analysis

- Collect Data on your Current Condition
  - Voice of the customer
  - Observe your process
  - Is there other data that you wish to obtain?

- Understand the root causes of your quality problem
  - Complete a fishbone and 5-whys with stakeholders
  - Does your data lend itself to a pareto chart?
<table>
<thead>
<tr>
<th>What</th>
<th>Who</th>
<th>By When</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>Stakeholder Analysis</td>
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<td>Voice of the Customer</td>
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<tr>
<td>Observe the Process</td>
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<tr>
<td>Other Data?...</td>
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<tr>
<td>Create Fishbone</td>
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<tr>
<td>Histogram and/or Pareto</td>
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<tr>
<td>Review and Revise Problem Statement</td>
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<tr>
<td>Establish standing team meetings</td>
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Small Group Activity

- Complete your project management plan as a team
Final Thoughts

• Complete the evaluation (blue paper)

• All materials from today are on medhub

• Don’t hesitate to contact us at any time with questions or if you get stuck- phone, email, meeting

• We will see you all again as a group on January 19, 2017!
Thank You

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