The A3 Lean Approach for Problem Solving in Radiology

1. Reason for Action
   - Over the last 3 years, a series of 8 seemingly unrelated adverse events occurred after the critical stage of IR procedures and were reported to our Patient Safety Reporting System.
   - While each event was investigated and managed appropriately, a broader analysis allowed us to identify a common trend and to implement a necessary Practice Quality Improvement project.

2. Define the Current Condition or State
   A representative team was established to clarify the current state, incidence, severity, and impact of the problem. No RB approach was required since this was a necessary quality improvement investigation in response to reported adverse events.

3. Measures of Improvement
   Based on data from the current state investigation, we defined our measures of improvement as follows:
   - 100% compliance with performing closeout procedure with all elements included
   - Zero needle sticks following interventional procedures
   - Zero lost or mislabeled samples or wrong samples collected
   - Zero hardware left in patient
   - Zero compliance with TIC documentation requirements and elements
   - What is the specific change we want to accomplish now?

4. Root Cause Analysis
   - We applied the basics of a root cause analysis to investigate each adverse event. A think tank group developed a standard process map for the post-procedure events.
   - We used the 5-WHY approach to investigate possible root contributors to the specific adverse events that occurred.
   - The exhibit illustrates the practical use of the A3 Lean tool for problem solving specifically as it relates to post procedure adverse events.
   - Of all the problems, why are we talking about this now?

5. Ideal Target Condition
   - We chose to use the A3 Lean format coupled with the PDCA cycle to root cause the problems, and to identify, assemble, manage, and monitor a series of countermeasures.
   - This exhibit illustrates the practical use of the A3 Lean tool for problem solving specifically as it relates to post procedure adverse events.

6. Countermeasure Implementation Plan
   - We decided to choose the equivalent of the pre-procedure closeout. For this post procedure practice quality improvement (PQI) project, we defined the ideal target as:
     - No documented adverse events following any interventional procedure
     - 100% compliance with post-procedure documentation and regulatory requirements
     - Proper boarding of all new staff and trainees specific to post procedure events
     - Dissemination of the identified solution(s) to other clinical departments

7. Monitor Results and Processes
   - In the 15 months since implementation of the closeout procedure, we have seen:
     - Proper onboarding of all new staff and trainees specific to post procedure events
     - No retained hardware or guide wires
     - No needlesticks occurring after procedures
     - No lost, incorrect or mislabeled samples
     - No retained hardware or guide wires
     - 100% compliance with the X-required documentation elements

8. Standardize and Spread Processes
   - In accordance with the standard A3 lean approach, the process has been continuously improved and standardized.
   - All members of the procedure team participate
   - The closeout is run by the responsible staff radiologist while present in the room
   - We have shared the process to all interventional services in our department.
   - We have shared the process with other hospital-based non-operational interventional services
   - We are sharing this success story with our radiology colleagues via this exhibit

References
Kruskal JB, Avellino PA, Lassen WR, Boiselle PM, Kruskal MJ. Quality improvement in radiology: the role of the A3. Radiographics. 2009 Jul-Aug;29(4):1081-90. *Some work was done by going to see the actual process, Gemba visit - action of going to see the actual process, see Gemba visit - action of going to see the actual process, see Gemba visit - action of going to see the actual process, see Gemba visit - action of going to see the actual process, see Gemba visit - action of going to see the actual process, see Gemba visit - action of going to see the actual process...