NYCLAD Ammunition in Criminal Casework
Robert Berk
Illinois State Police Forensic Science Center at Chicago

NYCLAD Ammunition
- Nylon coated lead bullets
  - Originally manufactured by Smith and Wesson
  - Federal purchased manufacturing rights
  - Intended to cut down on airborne lead particles in firing ranges
  - Occasionally seen in casework

Problem
- NYCLAD ammunition doesn't mark well and is difficult to identify to a specific weapon

Reference
- Gunshot Wounds by Otisai 1985
- The Analysis of NYCLAD Ammunition Discharge Residue by Zona 1996

Hypothesis
- NYCLAD Evidence should be examined as a trace evidence transfer prior to a typical firearms comparison.

Test Fire Sequence
- Random firearm selected from reference collection
  - Background
  - 8 shots copper jacketed ammunition
  - NYCLAD test
  - 8 shots blue NYCLAD ammunition
  - Retention study
  - 6 shots copper jacketed ammunition
  - Polymer and PGSR samples examined

Analyses
- Infrared Spectroscopy can be used to identify and compare the polymer
- Pyrolysis Gas Chromatography can be used to compare the polymer
- SEM can be used to identify the primer gunshot residue

Conclusion
- NYCLAD ammunition can be associated with a firearm based on the recovery trace evidence. The presence of the nylon polymer and primer gunshot residue containing cobalt is indicative of a NYCLAD discharge.

Case Study
- Five killed in South Side home
- April 24, 2008 Chicago SunTimes
- In one of the worst mass killings in Chicago in years, three men and two women were found shot to death Wednesday afternoon in a ransacked South Side home.
- Authorities would not identify the victims, but relatives said four of the dead were Anthony Scales Jr., Donovan Richardson, Whitney Flowers and Reginald Walker. They were in their 20s. The fifth victim’s name was not known.
- Police are investigating whether the two-story house in the 7600 block of South Rhodes was being used as a house of ill repute, a source said.
- The victims were found on the first floor of the home, police said. At least one was shot in the head.
- NYCLAD Exemplars
- NYCLAD and copper jacketed bullets from the same firearm
- *Rifling is impressed on this coating and not on the lead. If these bullets go through soft bone, the nylon jacketing may be shredded or stripped from the core, making bullet comparison more difficult or even impossible.

NYCLAD Test Fired

NYCLAD Test Fire Sequence
- 6 shots blue NYCLAD ammunition
- 6 shots copper jacketed ammunition

Analyses cont.

References:
- Automated SEM/EDS Analysis of Airbag Residue. II: Airbag Residue as a Source of Percussion Primer Residue Particles
  - By Berk JFS Jan 2009