

# Impact Analysis of Contrast Media Delivery Systems

## PROJECT SUMMARY

A healthcare products manufacturer wished to perform an unbiased time and motion analysis to compare the efficiency of two distinct methods of contrast media delivery processes for computed tomography (CT) examinations; bottle-filled syringes (vials) and prefilled syringes (PFS).

## SYSTEM DESCRIPTION

Fifteen (15) hospitals in seven (7) countries across Europe participated from this time and motion efficiency study. The main activities studied were:

- Patient arrival and scanner setup
- Scan
- Discharge patient, clean room
- Unload injector and load injector



## OPPORTUNITY

There was some opportunity to investigate the impact of contrast delivery solutions on patient throughput and CT scanning department overall efficiency (time savings, ROI, etc). There was also some opportunity to identify opportunities (best practices) for CT scanning process improvements.

## APPROACH

Industrial engineers performed a work measurement analysis of contrast-media-related tasks during CT scan examinations to determine:

1. the elements of work required to perform the tasks
2. the order in which these elements occur, and
3. the times required to perform them effectively

Tasks were recorded using a video camera and initially measured using a stopwatch. Time and motion data were compiled, analyzed, and compared for vials vs. PFS.



**SOLUTION**

Each of the elements (micro motions) in the standard procedures developed has an associated “predetermined time standard”. Standard times were developed using EASE® software for work measurement (based on MTM-1 and 2 International Standards). This was done with the purpose of making the comparison between methods more objective; in this context, the following assumptions were made:

1. Both procedures are carried out in the same CT room (i.e. same layout, same walking distance to cabinets, etc.)
2. Both procedures are carried out by the same operator working at the same pace
3. As a result, tasks independent of the contrast delivery method should take the same amount of time

**BENEFIT**

Based on the standard times calculated, the PFS method exhibits a standard cycle time 47.8 seconds shorter than the vials. This time saving represents a 21% increase in efficiency which translates to increased throughput and reduced costs.

