

# Analysis of Sterilization Wrappers vs. Containers

Busting the Urban Legends

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# Why an analysis of wrapper vs. containers?

- Opening up a new SPD department.
- A High volume/ High quality mission.
- Ortho/Neuro/Sports Med- Complex Sets
- Set output had to meet customers needs.
- Staffing & Productivity

# Urban Legends About Containers

- It's faster to process a set into a container
- Our set through-put will increase
- It will cost us less in the long run
- Containers are our best solution to holes
- It's a safer packaging method

# Evaluation Process

- **Purpose:** An analysis of the time to complete packaging for instrument sets in both containers and wrappers. Review of costs and productivity. Analysis of the time needed in Decon area to disassemble container pieces and render container ready for the washers.
- **Method:** Head to head trials timing the completion of the same instrument set in a container and a wrapper. Both instrument sets are complete and ready for packaging. Container packaging involves placing set in container, adding filters to the lid, locking lid to base, inserting two arrows to lock set, adding data card, adding barcode label. Wrapper packaging involves placing wrapper on table, placing two towels under set, wrapping set, taping set, and placing two barcode stickers on set.
- **Hypothesis:** That it takes less time to package an instrument set in wrappers than in a container. That containers add unnecessary non value added time to the processing area. That unnecessary time is spent in the Decon area breaking down containers to rewash them for future use. That there is added costs/labor to container use that has been overlooked.

# Evaluation Process

## Processing Area:

Mean for Containers - 68.286 sec.

\* See attached Data

Mean for Wrappers - 54.386 sec.

Difference in Mean - 14 sec.

Containers per day x Difference in Mean = Savings in seconds.

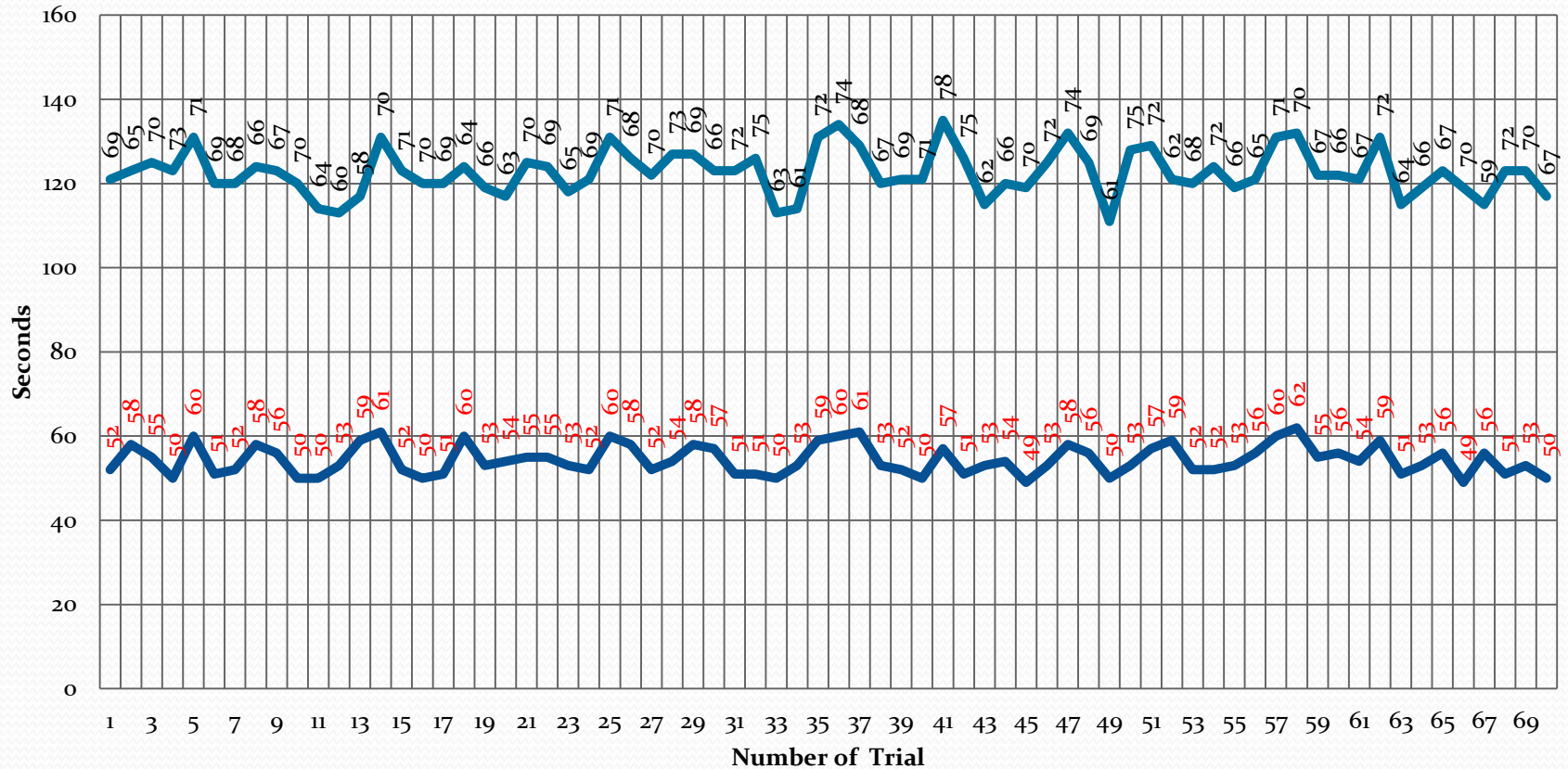
Containers Process per Day	Savings in Seconds per Day	Savings in Minutes per Day	Savings in Minutes per Month
300	4200 sec.	70 min.	1400 min.
600	8400 sec.	140 min.	2800 min.
900	12,600 sec.	210 min.	4200 min.

\*\* Did not include container gasket inspection

# Evaluation Process

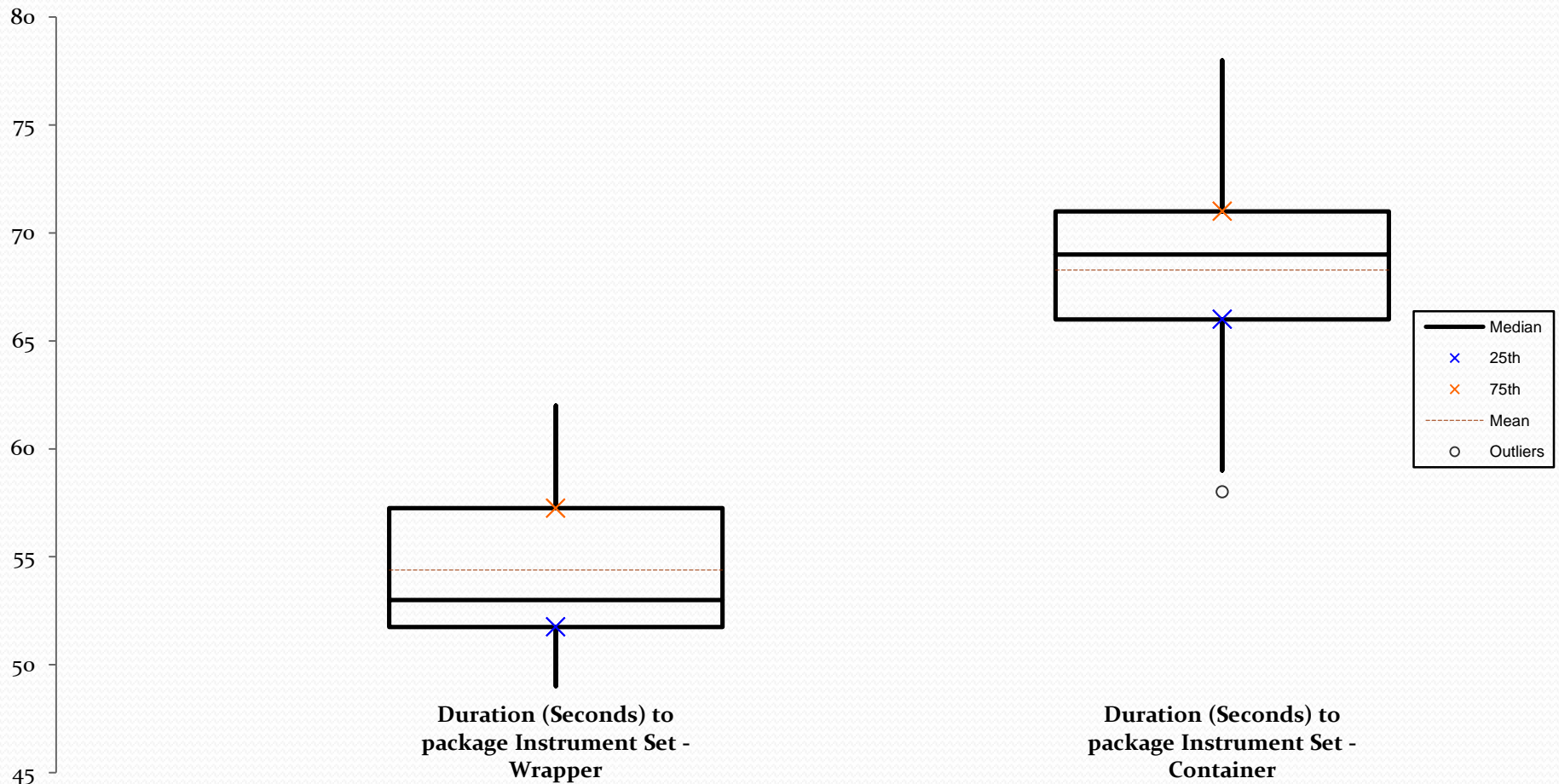
— Duration (Seconds) to package Instrument Set - Wrapper  
— Duration (Seconds) to package Instrument Set - Container

## Wrapper vs Container



# Evaluation Process

## Container vs Wrapper Analysis - Box Plot



# Evaluation Process

**Processing area labor savings from switching from containers to wrappers:**

Labor Cost: Mid range SPD tech, wage 15.59 per hour. 26 cents per minute

Labor cost per minute x Minutes saved = labor savings per day.

Containers Process per Pay	Savings in Minutes per Day	Labor Cost Savings per Day	Labor Cost Savings per Month
300	70 min.	\$ 18.20	\$ 364.00
600	140 min.	\$ 36.40	\$ 728.00
900	210 min.	\$ 54.60	\$ 1,092.00



# Evaluation Process

## Decontamination Area:

Method for breakdown of one Sterilization container:

Receive container, Remove data card, Remove arrows x 2, Remove filters x 2, Remove bar code label, Rack container for cart wash.

Mean time to complete breakdown of container: **30 sec.**

## Decontamination area labor savings for switching from containers to wrappers:

Mean time container breakdown x Number of containers = Savings in seconds.

Containers Process per Pay	Savings in Seconds per Day	Savings in Minutes per Day	Savings per Month
300	9000 sec.	150 min.	3000 min.
600	18,000 sec.	300 min.	6000 min.
900	27,000 sec.	450 min.	9000 min.

# Evaluation Process

Container disposables costs + Labor costs = Total cost per container.  $\$1.33 + .26 = \$1.59$

Savings in Minutes per Day x Total cost per container = Total cost savings

Containers Process per Pay	Savings in Minutes per Day	Cost savings per day	Savings per Month
300	150 min.	\$238.50	\$4,770.00
600	300 min.	\$477.00	\$9,540.00
900	450 min.	\$715.50	\$14,310.00

# Evaluation Process

**Combined savings for eliminating containers in processing and decontamination:**

Processing labor savings + decontamination savings = Total savings

Containers Process per Pay	Labor Cost Savings per Month Processing	Savings per Month Decon	Total Monthly Savings	Total Yearly Savings *
300	\$ 364.00	\$4,770.00	\$ 5,134.00	\$61,608.00
600	\$ 728.00	\$9,540.00	\$ 10,268.00	\$123,216.00
900	\$ 1,092.00	\$14,310.00	\$ 15,402.00	\$184,824.00

\* Does not include yearly container repair costs

# Conclusions:

- The analysis of container vs. wrapper usage shows wrapping sets is the faster process with a difference between the means of 14 seconds\*\*. By eliminating container usage in SPD decon and processing areas it can be shown that there is substantial savings in labor and supply costs.
  - 300 containers per day SPD - \$61,608\*
  - 600 containers per day SPD - \$123,216\*
  - 900 containers per day SPD - \$184,824\*

\* Does not include yearly container repair costs

\*\* Does not include required time for gasket inspection

# Urban Legends About Containers

## Now lets look at the facts

- It's faster to process a set into a container
  - Testing has shown this is not the case. Difference of 14 seconds.  
\*\*Testing did not include inspection of the container gaskets required by the vendor. Time difference would have been greater.
  - Recommend SPD managers do their own head to head trials.
- Our set through-put will increase
  - It has been shown that output decreases as container usage increases.
  - In the Decon area non value added work on containers has a huge impact on productivity. 150 to 450 minutes per day.

# Urban Legends About Containers

## Now lets look at the facts

- It will cost us less in the long run
  - Based on the analysis it can be very expensive to use containers. Not only the disposable cost but the labor element in the decontamination area to render the container reusable again.
  - As the containers age, the repair cost will increase. Most SPD managers are not looking at their container repair costs.

# Urban Legends About Containers

## Now lets look at the facts

- Containers are our best solution to holes
  - Oh Really? More like one of the most expensive.
  - Managers are not willing to take the time to look at causes and low-cost solutions.
  - Top causes, improper handling, use of wrong wrapper weight, inner pans with feet and square corners.
  - Proper placement of towels under pans.

# Urban Legends About Containers

## Now lets look at the facts

- It's a safer packaging method
  - Issues around gasket and latch failures
  - Containers failing a simple water test
  - No visual indication upon opening in the OR that gasket/latch did it's job
  - Process requires human inspection of gasket/latch



# Decisions/Process Changes

## 100% container free SPD Department



# Process Changes/Observations

- Opened up large new SPD with 100% wrapper use
- No decon process needed to re-clean containers
- Throughput fell in line with predictions
- Productivity in years 2 through 6 were between 97 & 104%
- The old SPD area moved to eliminate containers
- Staff loved not having to clean containers in Decon area

# Key Talking Points Regarding Rigid Containers

- **Impact on production in the decon area**
  - Need for added staff
  - Slows down throughput
  - Extra cart wash cycles with added time/costs
- **Impact on costs**
  - Cost of consumables for containers
  - Container repair costs over time
  - Inspection of container seals costs time and money

# Key Talking Points Regarding Rigid Containers

- **Containers are a very expensive solution to hole issues**
  - Help managers with issues like squared inner baskets and baskets with feet
  - Help managers choose the right weight for wrapper
  - Help with analysis of holes and recommend solutions
  - Help managers take a look at their container costs
  - Provide an app to help track container repair costs
  - Provide an app to compare total costs for both.

# Key Talking Points Regarding Rigid Containers

- **Impact on production in the Processing area**
  - If they are having trouble with set output now, containers will slow their efforts down even more. (“Container Effect”)
  - Studies show it is faster to wrap than containerize and process staff intuitively know this.
  - After containers come out of the cart wash there are labor and costs associated with making them ready for the Processing area.

# Key Talking Points Regarding Rigid Containers

- **Impact on safety**
  - Help managers understand gasket/latch issues
  - Have them do the water leak test
  - Added weight for instrument sets
  - Filter placement for container lids



Thank You – Any Questions?