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Decision criteria for selecting the «right» closed trolley system for an optimal reprocessing cycle

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Users/reprocessors in clinical practice face a major challenge in choosing the «right» closed structure trolley system for the optimization of the reprocessing cycle, due to the complexity of this topic and the many detailed points to be considered. The following deliberations outline the main issues in this context and summarize the most important criteria in the form of a checklist. The selection process of the right (hospital-specific) logistics system is thereby objectified and proceedings with potential suppliers in this area become much easier.

In today's hospital environment, the «right» logistics systems become increasingly important. With their help internal hospital processes are optimized, which facilitates the daily routines in the hospital in general. The target within the reprocessing cycle lies in the achievement of a closed process chain, taking into account the highest standards of hygiene.

Especially in the process step of sterilization and the associated interfaces, it becomes increasingly important to quickly transport the reprocessed/sterilized medical devices in a sheltered environment from the (internal or external) reprocessing site to the operating theatre without recontamination. The protected transport of contaminated medical devices from the application site to the reprocessing site is equally important.

In order to determine the optimal logistics system, designed for a particular hospital, there is a number of considerations to be made prior to the purchase decision.

Besides a wide range of different market suppliers, who differ in reliability, quality and price levels, the first choice to be made is between the two basic trolley design variants «stainless steel and aluminum». Transport systems made of stainless steel are characterized by a significantly higher temperature and chemical resistance compared to aluminum products. Thus stainless steel trolleys can be reprocessed more intensely and at much higher temperatures than a comparable aluminum version. Transport systems made of aluminum, however, as provided for example by Kögel, are characterized by their significantly lower weight. Aluminum trolley systems are lighter by a factor of 1.5 – 2.5 than a comparable steel version. They enable a more agile transport behavior, which provides a significant relief in daily clinical routine, especially when fully loaded. The corresponding weight savings do not just bring about ergonomic benefits, but also reduce the transport costs between external reprocessors and the hospital. The ergonomic advantages simplify the daily handling of the transport systems and support the hospital operator in obtaining the performance and good health of his employees. An important point in favour for the aluminum version is the price, which is usually lower than it is for a comparable steel version.

Fig. 1: Closed transport trolley system with flexible and fixed inner frame manufactured by Kögel

In addition to defining the outer material used, an aptitude test for the transport system is important, for transport between external reprocessor and hospital or only for internal transport. For optimal protection of the cargo, the castors and the locking systematics need to be determined accordingly. Furthermore, it should be specified whether a logistics system is required with removable or fixed inner frame. Flexible inner frames in the form of a car-in-car or a shuttle system are very well suited for case-specific delivery of the various operational areas, ensuring a process-optimized and, above all, hygienic delivery of the processed instruments into the surgical area.

At the same time the subsequent collection of the contaminated instruments is also greatly simplified. The following checklist summarizes the main options in the choice of the required transport system and thereby facilitates the internal specifications of the clinic, with or without subsequent tender, as well as the discussions with potential suppliers. ■

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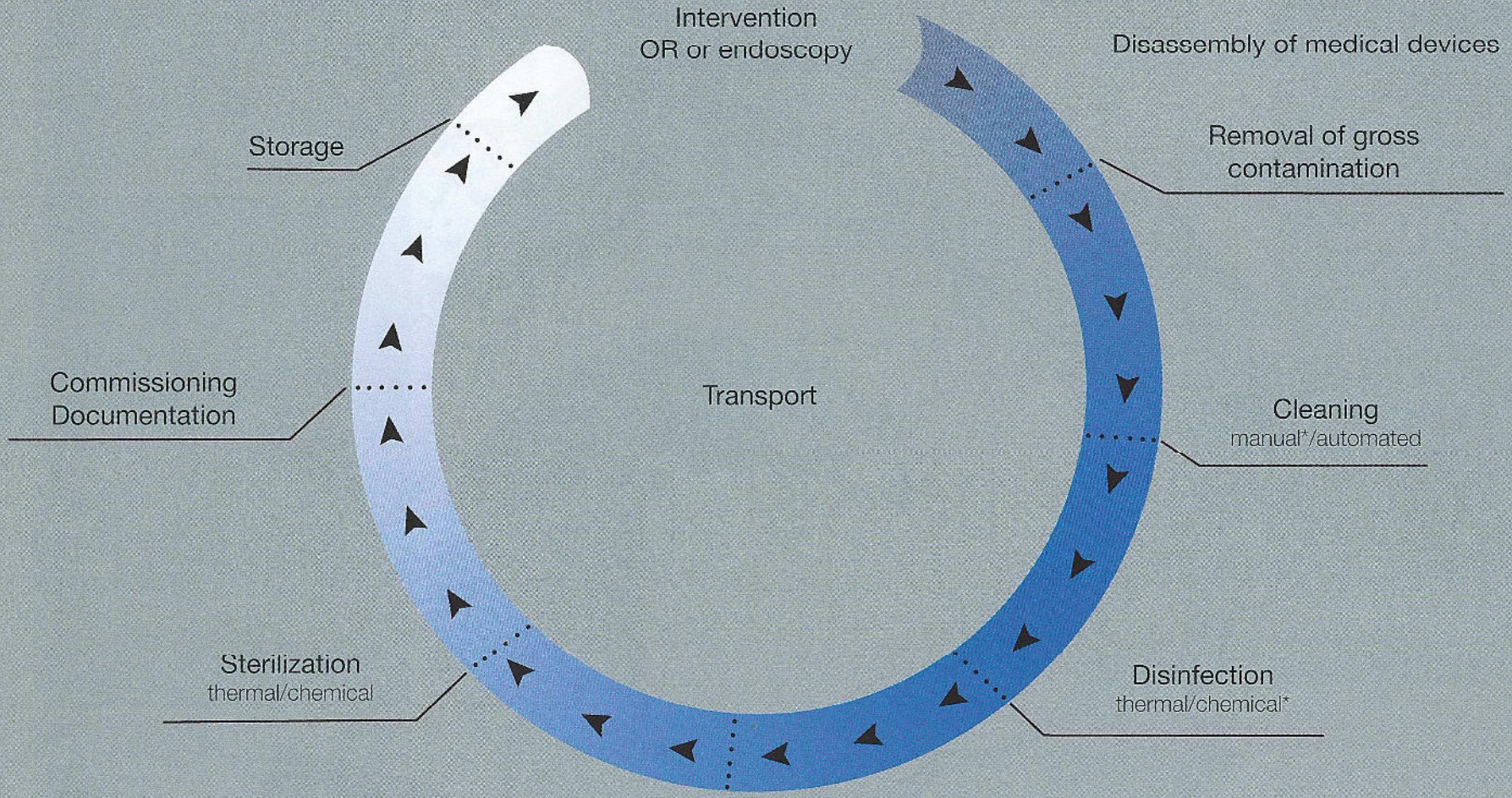
Checklist: Choosing the right trolley system

Question	Variants	Comment
Topic 1: Capacity		
How should the trolley be used?	• internal and/or • external transport	
What material design is preferred?	• stainless steel • aluminum	
What is the corpus stability? (torsional stiffness) Can the trolley e.g. easily be opened and closed at max. loading and on uneven terrain?		
What are the special requirements regarding the cleanability of the trolley?	• wipe disinfection • tunnel washer suitability • sterilisability	
In how far have sharp edges and undercuts been avoided by the manufacturer in order to improve handling safety and cleanability?	• design of the trolley's and door's interior sides (seamless construction) • surrounding door seal for max. dust proofing and reduced recontamination	
Which missed areas/rinse shadows are to be expected? (In the interior, on the doors or between the body and the doors)		
Is residue-free drying ensured within the trolley?		
Required dimensions/capacity of the trolley? Are containers/baskets in DIN or ISO dimensions stored/transported? Is a combined storage/a combined transport of DIN and ISO containers required?	• 3 STE* • 6 STE* or • 9 STE* * STE = Sterilguteinheit, being a rectangular form of 60 × 30 × 30 cm and a total volume of 54 liters	
Are there plans to use the trolley as a case trolley in the OT?		
Which loading weight per compartment is needed for the trolley?		
Topic 2: Reprocessing Requirements		
Which pH values are currently used as part of the cleaning process?		
What cleaning agents are currently used for reprocessing?		
Is tunnel washer suitability of the trolley necessary?		
Are the trolley or (if applicable) the inside cart to be sterilized?		
Topic 3: Detailed design		
Were measures taken to improve the water flow from the trolley roof?		
Is the trolley rainwaterproof? (important for external reprocessing)		
How much noise does moving the loaded trolley create?		

What locking sytematics are required?	• easy twist lock hole for seal • lockable lock • 2-point central locking	
Is a movable inner frame required?	• Shuttle Car-to-Car System • transfer trolley (movable in one or in two directions) • unloading platform • solid inner frame	
Is a circumferential door seal for optimized dirt protection required?		
Are circumferential wall guards or bumper guards necessary?		
Should the inner rack be adjustable in height? If so, with which spacing?		
Should the mobile inner frame be able to be moved along and/or across?		
Is a pull-out stop function for the transported containers required?		
What are the specific requirements for the coupling mechanism between transfer trolley and cabinet trolley for removal of the slide-in rack to provide for a maximum of handling safety?		
What kind of castors is required?	• 2 steering castors and 2 fixed castors • special abrasion resistance • central braking • fixable castors specifically for the use in a train or in combination with pass-through cabinets • sterilizable castors • antistatic castor design • positioning of the castors (parallel arrangement or crossover position for simple turning during standstill)	
Is train operation required/provided for?		
Required opening width and lockability of the doors?	• 255° and/or • 270°	
Is individual color coding required e.g. for identification of case trolleys?		
Which uneven grounds must normally be crossed?		
Topic 4: Required accessories for rationalization/facilitation of processes:		
Which accessory equipment should be included for the clinical routine?	• tow-bar and drawbar • add. friction damped tow-bar for swerve-free train operation • A4 label frame • A5 label frame • clipboard • earth cable • central brake • wheel brake • directional lock • vertical or horizontal push handle (on one or both sides) • height of handle position • support grids • wire baskets • support plate (possibly with holes) • containers • gallery on the roof of the transport system as an additional storage area • additional coding e.g. within the bumper strip	

Quality cycle of instrument reprocessing



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* final rinsing and drying required