 <p>Winnipeg Regional Health Authority Office régional de la santé de Winnipeg Caring for Health À l'écoute de notre santé</p> <p>PRIMARY HEALTH CARE OPERATIONAL GUIDELINES</p>	<p>Operational Guideline: <i>Kanban Inventory System</i></p>	<p>Guideline Number: <i>PCOG#28</i></p>
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1. INTENT

- To provide direction regarding a standard and consistent approach for the planning and set-up of a Kanban Inventory System
- To assist in identifying and defining a standardized list of medical supplies to be maintained and managed for efficient operation of a Community Primary Care Clinic
- To improve patient flow and quality of patient care provided by ensuring individual clinic rooms are fully and consistently stocked with the necessary medical supplies
- To become leaner as a result of not holding excessive stock levels
- To decrease the value of inventory written off by ensuring product is rotated and thereby consumed prior to expiry dates
- System automation (maintaining inventory levels in SAP) will mean less time on administration and more focus on managing patient care

2. DEFINITIONS

Kanban: Is a Lean tool meant to deliver what the process needs exactly when it needs it. In Japanese the word “Kan” means “visual” and “ban” means “card”, so Kanban refers to “visual cards”. Kanban was originally invented as a part of the famous Toyota Production System. It is associated with the design of pull systems and the concept of delivering just-in-time goods. A pull system is where processes are based on customer demand and therefore leaner as a result of not holding excessive stock levels.


Stock Materials: Regularly stocked and consumed in an area, whether the material is stocked in a hospital warehouse or externally procured from a vendor

Non-Stock Materials: Not regularly stocked in the supply area but brought in occasionally for special circumstances. These materials are not inventoried but rather consumed on receipt.

5S Process: Is an approach to organizing a workplace, particularly the materials and supplies within that workplace, to make sure that employees have what they need with minimal searching and waste. 5S refers to the steps taken to organize those supplies: Sort, Set in Order, Shine, Standardize, and Sustain.

Red Tag Area: When going through the 5S process in the “Sort” function, sometimes it’s not clear whether an item or piece of equipment should be kept or removed. A Red tag area will help the team temporarily “let go” of items rather than struggle through the decision of discarding versus keeping.


5S Story Board: Communication tool used when an improvement project is underway. It is meant to provide team members with a snapshot of the improvements being made and catch the attention of the staff that are not on the project team by showing at a high level the before and after, what was done, and what the results achieved were.

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Supply Cost Visibility: Is a strategy for promoting staff awareness to make informed choices and is intended to decrease waste through education and visibility of pricing.

3. **GUIDELINE**

- 3.1. To ensure success, it is important to actively engage all members of the Primary Care team from the onset. Frequent communication and meetings during the entire process will facilitate participation, involvement, and input thereby ensuring team members have a vested interest in seeing the Kanban inventory system changes implemented. The use of a 5S Story Board will help communicate these changes to other Service Areas and teams.
- 3.2. In preparation for implementing a Kanban inventory system, the medical supply room and individual clinic rooms will need to be cleaned and organized thoroughly using 5S methodology (APPENDIX A) as follows:
 - **Sort** through all items in the medical supply room and decide with each item if you are going to keep it and if so what quantity, discard it, or put it in the Red Tag Area. Medical supplies maintained should match the needs of both the patients and providers of the clinic.
 - **Set in Order** by placing the items used most often in the easiest to reach locations. Label shelves, use bins to store supplies, etc. A clean and organized stock room will ensure medical supplies can be found and are clearly visible and easily monitored to avoid over/under ordering.
 - The **Shine** stage is when the area is physically cleaned up. May include tasks such as sweeping, dusting, and painting (if necessary) so the room looks clean. It's important to create pride in the work area.
 - Once the Set in Order stage has had time to be tested, **Standardize** the changes. For example, use the same labeling format, color code, and use consistent signage to name a few. Standardization of supplies will ensure providers can easily use multiple clinic rooms - the same medical supplies are located in the same location in each clinic room.
 - **Sustaining** the gains is the most important and difficult activity to do. If the Lean principles of standard work, visual management, and flow are used then your new system will have self-monitoring attributes.
- 3.3. A Red Tag Area (APPENDIX B) will be required during the Sort function. This involves locating a storage area where medical supplies or equipment can be tagged (APPENDIX C) and located temporarily to help the team "let go" of items rather than struggle through the decision of discarding versus keeping. Those items temporarily located to this area may be moved back into the supply room at any time if deemed necessary. A timeline should be set on how long items can stay in the Red Tag Area. Any remaining medical supplies or equipment still in this area once this timeline has passed can be disposed and/or given away to other Service Areas or Community Offices who may require them.

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- 3.4. A successful Kanban inventory system aligns inventory levels with actual consumption. To begin the process of identifying inventory levels, consult Supply Chain Management Shared Services (Shared Health) for assistance in generating inventory reports from SAP. The Procurement team can assist in running a variety of SAP material usage reports including a site specific **Supply Room Materials List** based on prior material orders placed during a defined period of time.
- 3.5. Inventory management in the SAP environment requires sites to order stock on a regular, defined basis. Clinics will want to define an order schedule that is frequent enough to meet their needs, but not so frequent that it creates unnecessary work.
- 3.6. For every item on the *Supply Room Materials List* that will be a stock material, desired quantities will need to be determined. It is recommended that all inventory lists and quantities to be maintained are reviewed with providers to ensure accuracy and agreement.
 - **Determine the maximum quantity to have on-hand.** The clinic will have to consider the amount of the material they need to have in their inventory to ensure they don't run out. This number should cover their requirements for the *majority* of the time. If there is a period of higher need, additional material can be ordered manually. Other considerations to take into account include how often supplies will be ordered, how long it takes for an order to reach the site, and what quantity (on average) is used within an order period.
EXAMPLE: Over the course of a year, a site ordered 35 boxes of a certain type of glove. The site has decided to order inventory every two weeks, so they would divide total usage by 26. ($35/26 = 1.35$ boxes of gloves). Sites will want to round up for times of more need and may decide in this instance to maintain a maximum inventory of 3 boxes of gloves.
 - **Determine the re-order point.** The re-order point is just above the minimum quantity of a material that the clinic can reasonably have on hand. SAP triggers an order when a material's count falls below its designated reorder point. This means if a site wants to top up a material when they reach $\frac{1}{2}$ of their maximum quantity, their reorder point needs to be $\frac{1}{2}$ the max plus 1. When determining the re-order point, consider how long it takes for a material to reach the site.
EXAMPLE: A site wants to have one box of these gloves in stock at all times. This means that the minimum is one box. Because it takes a few days for the order to reach the site, they may want to set their re-order point higher than that. A re-order point of 2 boxes of gloves ensures the site will have stock on-hand during the delivery period.
 - **Determine the number of items per purchase unit of measure.** If the purchase unit of measure contains more than one piece of the material, the number of pieces within that unit must be considered when setting up the

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maximum quantity and re-order points. SAP will adjust the quantity ordered to the purchase unit.

EXAMPLE: A site places an order for the purchase of 3 boxes of gloves. If the purchase unit is a case consisting of 5 boxes, SAP will create a purchase order for 1 case of 5 boxes.

- **Consider any non-stock materials or materials that do not appear on the *Supply Room Materials List*** but should be entered into SAP as stock materials and maintained in the supply room.


EXAMPLE: A site may have not needed to order a certain material within the period of the report but wish to maintain it as a stock material.

3.7. Once desired inventory and quantities are finalized, this information will become the site specific **Master Supply List**. It is imperative to maintain a current *Master Supply List* at all times and update ongoing as new items are added, existing items removed, or desired stock quantities revised. The *Master Supply List* should be easily accessed by all team members with a copy posted in the medical supply room for reference as required. The *Master Supply List* may include such information as:

- SAP material number
- Item description
- Unit of measure
- Number of items per unit of measure
- Unit price
- Maximum stock quantity
- Re-order quantity
- Shelf/bin location within medical supply room


3.8. To assist in organizing inventory within the medical supply room and individual clinic rooms, the following processes may be considered and implemented where feasible and applicable.

- Inventory should never be shelved or stored within the same cardboard box the stock arrived in. Contents of the cardboard box should always be removed from the case upon receipt as long as items are individually wrapped to ensure infection prevention standards are met.
- Every inventory item identified on the *Master Supply List* should be assigned a location (shelf and/or bin) within the medical supply room where it can be located and stored until required
- Bins should be used where possible to assist in keeping smaller non-stackable inventory items organized. Where feasible, two bins should be incorporated for each inventory item. If a site orders inventory bi-weekly, then the quantity of inventory used in a 2 week period is kept in one bin with the same quantity in the second bin. In this instance, the site has decided to have 4 week's worth of inventory on their shelf. The site has the second bin to draw from when they are waiting for the replenishment order to be placed and received.


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- In a 2 bin system, inventory should be removed from the top bin only. When the top bin is empty it would be rotated to the bottom and will serve as a trigger for the person responsible for reordering that a re-order point has been reached.
- The use of removable cards attached to the front of bins may further assist visually with inventory management (i.e. white card always on the first bin, red card always on the second bin). Once stock of an inventory item is depleted from the top bin and the bin is rotated to the bottom, the white card would be pulled from the empty bin and placed in a designated location that signifies "SUPPLIES TO ORDER". Replacement orders would be required for all inventory item cards located here. If the red card is ever pulled and placed in the "SUPPLIES TO ORDER" area, this would show urgency in ordering this item as entire stock would have been depleted. Once replenishment stock arrives, bins are refilled and the cards replaced on the front of the bins.

3.9. It will be necessary to create a bunk and/or bin/card label for every inventory item identified on the Master Supply List. The content of what is to be included on the label or card may vary between sites but provided below is the recommended label format.

1	207715	2	Sloc: S010	3	Bin: 1-B-06
4			5	053-MDS202000	
6	APPLICATOR COTTON TIP STER 2/PK 6"				
7	Max: 5	8	ROP: 1	9	PK
				10	\$ 0.02

- (1) **Material number** – the SAP reference number for the material
(2) **Storage location** – the SAP number assigned to the room, cart, etc. where materials are stored
(3) **Bin location** – the exact spot where the material is stored within the storage location
(4) **Bar coded material number** for handheld scanning. Barcoding technology is not being utilized within our Primary Care Clinics at this time and therefore will not be part of the label or card.
(5) **Vendor material number**
(6) **Material description**
(7) **Maximum quantity** kept in inventory in the Storage location

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(8) Reorder point – the lowest amount to have on-hand before a material is reordered


(9) Base unit of measure – the unit in which a material is ordered

(10) Cost of the material per base unit of measure. Unit pricing is included to ensure Supply Cost Visibility.

- 3.10. Once the set-up of the medical supply room is complete and organized, it will be necessary to expand the process to include the set-up, stocking, and standardizing of medical supplies to be maintained in each of the individual clinic rooms. All clinic rooms are to be fully stocked with all required medical supplies as identified by the providers themselves – this forms the basis of the **Individual Clinic Room Supply List**.
- 3.11. Each clinic room should be identical in stock and location with ideal quantities available for daily use. Clinic rooms should also be well organized and clearly labeled for efficiency in daily stocking process. By standardizing the supplies, a provider will be able to use multiple clinic rooms and know exactly where supplies are located in order to provide quality care to patients without having to leave during a visit. Patient flow is more efficient and providers are able to stay on schedule better.
- 3.12. Clinic rooms should be “forward filled” which means inventory located within each clinic room is topped up or replenished using the inventory located in the medical supply room. Once inventory leaves the medical supply room it is considered expensed. Clinic rooms should be topped up before any inventory counts within the medical supply room are completed. Clinic room inventory is not counted when doing stock counting.
- 3.13. It will be necessary for sites to develop a restocking process for the Primary Care Assistant(s) responsible to maintain, reorder, and restock inventory in the medical supply room and individual clinic rooms. Details may include the frequency and when best to restock individual clinic rooms (i.e. daily before clinic opens), frequency and when best to reorder inventory, and the completion of random inventory audits (i.e. cleanliness of medical supply room, are bins being rotated when empty) to identify a few.
- 3.14. Kanban procedures should be clearly articulated, printed, and laminated for easy reference by all team members. Copies of procedures (APPENDIX D) should be posted in the main medical supply room and all clinic rooms for both awareness and educational purposes.

4. **SOURCE/REFERENCES**

- Primary Care Service Area PBMA Process Review, Improvement Initiative Project undertaken by 1001 Corydon entitled “Patient Flow Improvement Initiative (Kanban) - Report Out”; Primary Care Team @ 1001 Corydon (November 2013)
- 5S Information Sheets, Learning To See (LTS Consulting)
- WRHA - Business Process Solutions Project (BPSP): Phase 2 – Preparing for Inventory Management (February 2014) and BPSP Bulletin (January 2015)

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5. APPENDICES

- APPENDIX A – 5S Tool
- APPENDIX B – Red Tag Area
- APPENDIX C – Red Tag Area Usage Instructions
- APPENDIX D – Kanban Supplies Procedure (Sample Poster)

SCOPE: Applicable to all WRHA Primary Care Direct Operated Clinics and Walk In Connected Care Clinics (including McGregor, Access Fort Garry and Access Winnipeg West).

NOTE: While the Funded Community Health Agencies are out of scope of Primary Care Operating Guidelines, it is recommended the content and/or processes be adapted/adopted where applicable.

****Questions related this or any other Primary Care Operating Guideline should be directed to Primary Care Service Area Leadership***

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