



Texas Department of State
Health Services

MSL and Vaccine Loss

Immunization Unit – Vaccine Management Group

Maximum Stock Level (MSL)



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Health Services

- What are MSLs
- Why are MSLs used
- Calculating MSL
- Vaccine Choice and Suggested Quantities
- New Providers and MSLs
- Challenges and Successes



What are MSLs



- The maximum stock level is:
 - A calculated peak dose inventory per vaccine type.
Each provider has unique MSLs based on their patient population
- A provider's MSL may be increased or decreased at any time if the number of TVFC/ASN patients served changes or if there are any applicable changes to the status of the facility that impacts vaccine usage

3

What are MSLs



- Viewing MSLs in ITEAMS application
 - Central Office can:
 - View and edit access to MSLs
 - Regions and responsible entities have:
 - View only access to MSLs

Product Group	Max Stock Level
HEPAAD	0
HEPABAD	0
HEPABP	10
HEPAP	40
HEPBAD	0
HEPBHB	0
HEPBIP	10
HIB	50
HIBAD	0
HPVAD	0
HPVP	20
IPVP	20
Kris	0
MCV4AD	0
MCV4P	10
MENBAD	0
MENBP	20
MNRAD	0
MNRBP	20
MNRV	20
PCV13AD	0

4

Why MSLS are Used



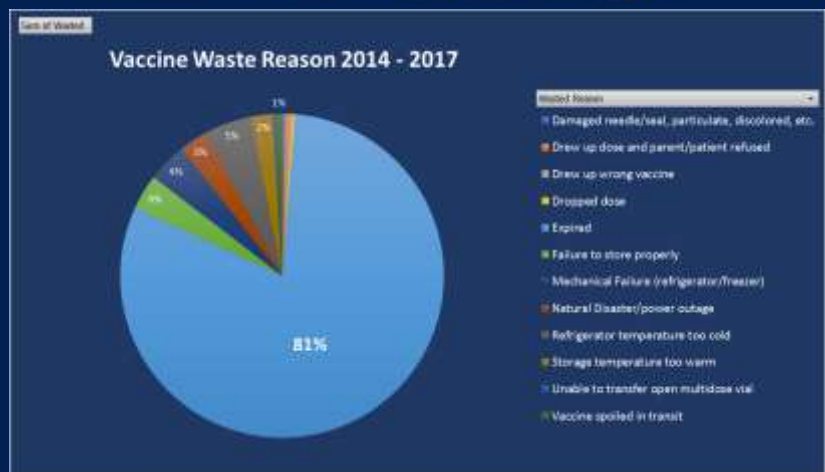
- Align with CDC recommendation that:
 - vaccine orders be placed when there is a 30-day supply
 - Providers make small, more frequent orders
- Prevent over stocking of vaccines with limited availability
- Provide assistance to providers on determining adequate vaccine inventory

5

Why MSLS are Used



All factors in
reducing loss due
to expired vaccines



Calculating MSLs



- MSLs provide a two and a half month supply of vaccine
 - Based on doses administered data for previous 12 months
- Example: Provider administered 685 doses of DTAP from 11/16/2016 to 11/15/2017
 - 685 divided by 12 equals 57.1
 - Multiply 57.1 by 2.5 to get a 142.7 two and a half month supply
 - Round 142.7 up to the pack size to get an MSL of 150
 - *Pack size is the smallest dose quantity a vaccine will be shipped with and ranges from 1 to 25 depending on the vaccine*

7

Calculating MSLs



- MSLs are recalculated on a monthly basis
- Providers receive monthly emails with latest MSLs

Dear Sir or Madam,

Your Maximum Stock Level (MSL) has been updated in preparation for November vaccine orders. The MSLs are calculated to provide a 75-day supply based on doses administered over the last 12 months. Please refer to the table below for your new MSLs by vaccine group.

Pediatric Vaccine Type	MSL	Pediatric Vaccine Type	MSL	Adult Vaccine Type	MSL
DT (Ped)	1	MCV4 (Ped)	130	HEPAB (Adult)	10
DTAP (Ped)	140	MENB (Ped)	50	HEPA (Adult)	10
DTAPHIBIP (Ped)	110	MMR (Ped)	40	HEPB (Adult)	10
DTAPIPHI (Ped)	120	MMRV (Ped)	120	HPV (Adult)	10
DTAPIPV (Ped)	70	PCV13 (Ped)	300	MCV4 (Adult)	15
FLU (Ped)*	1000	PPSV23 (Ped)	1	MMR (Adult)	10
HEFAB (Ped)	10	ROTA (Ped)	175	PCV13 (Adult)	20
HEPA (Ped)	190	TDAP (Ped)	80	PPSV23 (Adult)	20
HEPB (Ped)	60	TD (Ped)	4	TDAP (Adult)	60
HIB (Ped)	225	VARIC (Ped)	50	TD (Adult)	10
HPV (Ped)	190			VARIC (Adult)	10
IPV (Ped)	80			ZOSTER (Adult)	20

8

Choice and MSLs



- Texas legislation requires that TVFC allow providers their choice of vaccines available through the CDC
 - *Vaccines of the same type must not exceed a 115% cost difference*
- If a provider selects multiple vaccine brands or presentations for a single vaccine type, the MSL will be split based on the choice split.
 - In the example below, our DTAP MSL of 150 is split three ways

DAPTACL (DTAP), single-dose vial (Ped)	50
INFANRIX (DTAP), PF syringe (Ped)	25
INFANRIX (DTAP), single-dose vial (Ped)	25
Total for group (12--DTAP)	100

- DAPTACL SDV = 75, INFANRIX PFS = 37.5, INFANRIX SDV = 37.5

9

Suggested Quantity and MSLs



- Recommended amount of vaccine to reach MSL when placing a new order
- Formula: $MSL - (\text{current inventory} + \text{pending orders}) = \text{Suggested Quantity}$
 - *The Suggested Quantity will be rounded down for pack size*
- Exceeding suggested quantity requires approval from the provider's responsible entity



10

Example



- With the DTAP MSL of 150 and three products selected with a choice split of 50/25/25 the Suggested Quantity will be:

DAPTACEL (DTAP), single-dose vial (Pod)		70.00	70
INFANREX (DTAP), PF syringe (Pod)		20.00	20
INFANREX (DTAP), single-dose vial (Pod)		20.00	20

- If the same provider has 30 DTAP doses in inventory and 20 doses being shipped, the Suggested Quantity will be:

DAPTACEL (DTAP), single-dose vial (Pod)		30.00	30
INFANREX (DTAP), PF syringe (Pod)		20.00	20
INFANREX (DTAP), single-dose vial (Pod)		20.00	20

11

New Providers and MSLs



- Providers must have 12 months of doses administered data for monthly MSL Data
- New providers are assigned MSLs based on patient estimates
- New providers may need initial MSLs adjusted
 - Assessments normally take place at 6 months

12

Challenges and Successes

Back to School

- Providers see a spike prior to a new school year
- Spike is associated with vaccines required for students returning to school
- Providers stock up in the months prior to administering the doses



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Challenges and Successes

Exceeding MSLs for special circumstances

- Providers holding a special clinic
- Providers merge, increasing population for one
- Provider electing to change the presentation of a vaccine
 - switch from to Pentacel (DTAPIPHI) to Pediarix (DTAPHBIP)



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Challenges and Successes

MSLs and flu open ordering

- Flu season has first round pre-book, second round pre-book and open ordering
- Providers can receive flu vaccine during any one of these stages
- Ensure there are no barriers to receiving flu vaccine



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Challenges and Successes

Changes in 2017

- Stronger enforcement of MSLs
- MSLs updated monthly
- Increased MSL supply from 60 day to 75 days
- Providers receive their updated MSL levels monthly



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MSL Summary



- What are MSLs and why do we use MSLs
- How do we calculate MSLs
- MSLs, Choice and Suggested Quantity
- Challenges and Successes

17

Vaccine Loss



- Overview
- Types of Loss
- Processing Loss
- Preventing Loss



18

Vaccine Loss Overview

Why do we track loss?

- Federal Excise Tax (FET) credit
- Proper disposal of expired/wasted vaccines
- Accountability



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Vaccine Loss Overview

History

- Outdated manual process
- Large volume of wasted/expired vaccines



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Vaccine Loss Overview

Example of Manually Deemed Losses

Item Number	Customer ID	Date Time	Item Description	Lot	Expiration Date	Entered By	Item Long Desc	Responsibility	Quantity	Wasted Description
40281-0416-50-P		01/06/2017 08:24:00	FLUCELVAX ES L	019029A	06/202017		FLUCELVAX ES (FLU) PF syringe L	Undetermined	-10	Expired
00006-4045-41-A		06/01/2017 08:46:00	GARDASIL (HP)	L04060	05/27/2017		GARDASIL (HPV4) single-dose	Negligent	-20	Expired
00006-4045-41-P		06/01/2017 08:46:00	*GARDASIL (HP)	L04060	05/27/2017		*GARDASIL (HPV4) single-dose	Negligent	-15	Expired
46028-0114-02-P		05/02/2017 08:28:00	BEKSERO (ME)	153701A	04/30/2017		BEKSERO (MEV6) FF SYRING	Negligent	-1	Expired
00006-4943-00-P		03/31/2017 08:50:00	PNEUMOVAX Z	L019636	03/04/2017		PNEUMOVAX Z (PPSV23), sing.	Non-Negligent	-4	Expired
49281-0589-05-P		03/03/2017 12:42:00	MENACTRA (M)	U5178AA	01/13/2017		MENACTRA (MCV4), single-dos.	Negligent	-15	Expired
49281-0589-05-A		03/03/2017 12:42:00	MENACTRA (M)	U5178AA	01/13/2017		MENACTRA (MCV4), single-dos.	Negligent	-10	Expired
00006-4963-41-A		03/03/2017 12:42:00	ZOSTAVAX (Z)	L040445	01/15/2017		ZOSTAVAX (ZOSTER), single-d.	Negligent	-10	Expired

21

Vaccine Loss Overview

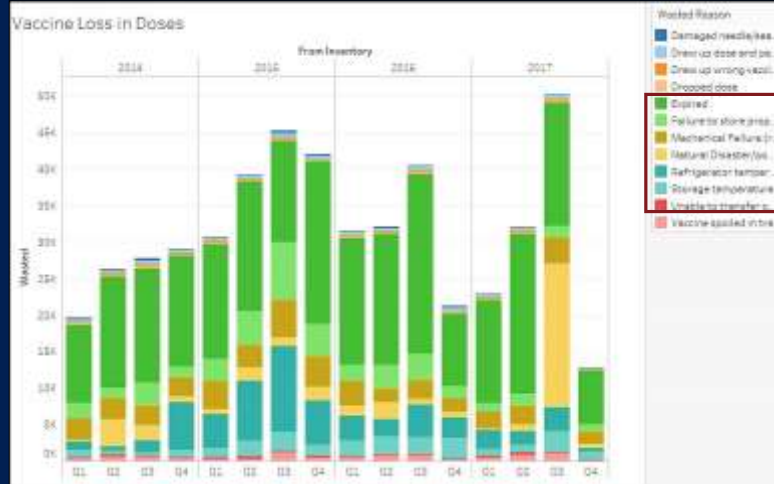
Example of Loss Entered in the CDC Vaccine Tracking System (VTrckS)

Actions	Item No.	Dr.	NDC Code	U	Expiration Date	Quantity	Unit	NDC Description	S	P	Item Category
	1000	D...	40281-0286-10		06/00/0000	3	DOS	DTAP, SDV, 10-pack	R		Compliant Item
	2000	P...	50110-0611-02		06/00/0000	4	DOS	DTAP-IPV-HEP B, SYR, 10-pack	R		Compliant Item
	3000	NA	00006-4045-00		06/00/0000	1	DOS	MMR, SDV, 10-pack	R		Compliant Item
	4000	D...	00006-4045-41		06/00/0000	7	DOS	HPV, SDV, 10-pack	R		Compliant Item
	5000	NA	40281-0589-05		06/00/0000	11	DOS	MCV4, SDV, 5-pack	R		Compliant Item
	6000	D...	40281-0286-10		06/00/0000	5	DOS	DTAP, SDV, 10-pack	R		Compliant Item
	7000	P...	00006-7971-02		06/00/0000	6	DOS	PCV13, SYR, 10-pack	R		Compliant Item
	8000	FL	40281-0416-50		06/00/0000	4	DOS	FLU, SYR, 10-pack (QUAD)	R		Compliant Item
	9000	FL	40281-0416-26		06/00/0000	8	DOS	FLU, SYR, 10-pack (QUAD)	R		Compliant Item
	10000	FL	50110-0905-52		06/00/0000	10	DOS	FLU, SYR, 10-pack (QUAD)	R		Compliant Item

22

Vaccine Loss Overview

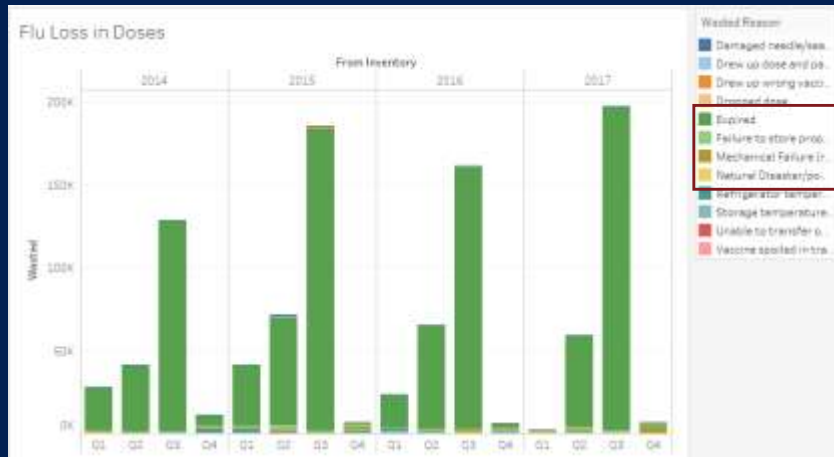
Vaccine Loss in Doses



23

Vaccine Loss Overview

Flu Vaccine Loss in Doses



24

Overview of Loss

Challenges

- Mandated vaccines
- Multi-dose Vial (MDV) vs Pre-filled Syringe (PFS)
- Maintaining effective communication and understanding of the VLR process



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Types of Loss

- Expired
 - Negligent in rotating vaccine inventory
 - Over Stocking Vaccine Inventory
- Refrigerator temperature too cold
- Failure to store properly
- Mechanical failure
- The above factors represent 94% of all vaccine loss



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26

Types of Loss

Guideline used for Deeming Negligent vs. Non-Negligent

Negligent vs. Non-Negligent Determining Factors	
Damaged needle/seal, discolored, etc.	Non-Negligent
Drew up dose and parent/patient refused	Negligent
Drew up wrong dose	Negligent
Expired	Negligent or Non-Negligent
Failure to store properly	Negligent
Mechanical Failure (refrigerator/freezer)	Non-Negligent
Natural Disaster/Power Outage	Non-Negligent
Refrigerator temperature too cold	Negligent
Refrigerator temperature too warm	Negligent
Unable to transfer open MDV	Non-Negligent
Vaccine spoiled in transit	Non-Negligent

27

Processing Losses

Creating a Vaccine Loss Report (VLR)

- VLRs are created in the Electronic Vaccine Inventory (EVI) system within four days of waste and/or expiration
- VLR is forwarded to Responsible Entity (RE) for review
- RE reviews and approves VLR before emailing VLR to Texas Vaccines for Children (TVFC) for processing

28

Processing Losses

Example of Completed VLR

Texas Wasted or Expired Vaccines

PIN: _____ Phone: _____
 Facility Name: _____ Contact: _____
 Address: 1501 W 11th Place
 Suite 200

Explanation of Loss

Step To Prevent Future Losses

Trained staff to notify HSR or UHD 90 days before expiration for any vaccine that will not be used by the expiration date.
 Trained staff to rotate stock and use the vaccine with the soonest expiration date first.
 Trained staff to take immediate action to correct out-of-range temperatures and to contact their HD.
 None of the above

Vaccine	NDC	Lot Number	Expiration	Doses	Reason	Cost
FLUARIX 0.5 (FLU), PF syringe IP#0 2016-2017	58160-0955-52-P	4A2EE	09/30/2017	10.00	Expired	\$144.30
TOTAL COST						\$144.30

29

Processing Losses

Deeming and Loss Upload

- TVFC electronically accesses VLRs in ITEAMS and manually deems each individual vaccine
- All losses must be reported to the CDC via their VTrckS system
- The CDC will report the losses to McKesson Distributor to facilitate the distribution of UPS return request labels to providers' offices

30

Processing Losses

Provider Notification Email

Dear Sir or Madam,

Your return shipping label for the Vaccine Loss Report (VLR) submitted on 10/13/2017 has been processed. Your site email address will be receiving an email within the next 3 hours from UPS Quantum View: pkginfo@ups.com <<mailto:pkginfo@ups.com>>, which contains the URL to obtain a printable UPS return label (Your site email on record: eloise.potter@dshs.texas.gov). Please include a copy of your VLR and all vaccines listed on that VLR in your package.

NOTE: You may receive multiple shipping labels if you entered a large amount of loss. You are not required to split your vaccines into multiple return packages as long as no single package exceeds 70lbs.

*** This is a system generated message please do not reply ***

For assistance, please contact the TVFC Vaccine Call Center

Phone: 888-777-5320

Email: VacCallCenter@dshs.texas.gov

Please note My email address has changed to reflect @dshs.texas.gov domain. Please be sure to update your contact information with the new address.

31



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UPS Return Label



UPS Returns Label Delivery

This notice tells you that a UPS shipper has sent you an electronic label.

You can print and use this label to include in your outbound shipment, or send it to the carrier. The label will be available for 30 days.

Note: When entering your label below, we will provide you with both a UPS Returns Label and Commercial Invoice if the service was prepared by the original shipper.

[View UPS Return Documentation Instructions](#)

[Review Your Shipment Label](#)

[Schedule a Pickup](#)

[Get the Receipt](#)

[Find the Closest Service Location](#)

[Find Out More About Returning Your Shipments](#)

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32



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Preventing Loss

- Communication
 - 90-day notice of short dated vaccines
- Provider office staff training
 - Rotation of vaccine inventory
 - Smaller, more frequent orders
 - Emergency Vaccine Storage and Handling Plan
- Proper Temperature Monitoring



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Future Plans

- Automation of Deeming Process
- Continuing Education
 - MSL & SQ Guidelines
 - Inventory Management
- Reducing Vaccine Loss



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34

VLR Summary

- What is Vaccine Loss
- Types of Losses
- Processing Losses
- Preventing Losses
- Future Plans



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35



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Thank you

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36