



Effective vaccine management

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Background



Effective Vaccine Management Audit

EVM assessment conducted in all provinces – limited public sector sites at all levels within the immunisation supply chain

COVID-19 pandemic

COVID-19 pandemic required an outbreak response that included vaccination and vaccines stored at various cold chain ranges

National Cold Chain Audit-Private and Public

National cold chain audit required before COVID-19 vaccine introduction to identify cold chain gaps

Effective vaccine management training

Launch of EVM training to address vaccine management gaps identified since 2017

Cold chain equipment investment & Training

Between 2021-2023 – More that R450 million cold chain equipment investment in public health sector
Training of HCW during COVID-19 vaccine introduction on Vaccine logistics, distribution and storage

2017

2019

2020

21-23

2024



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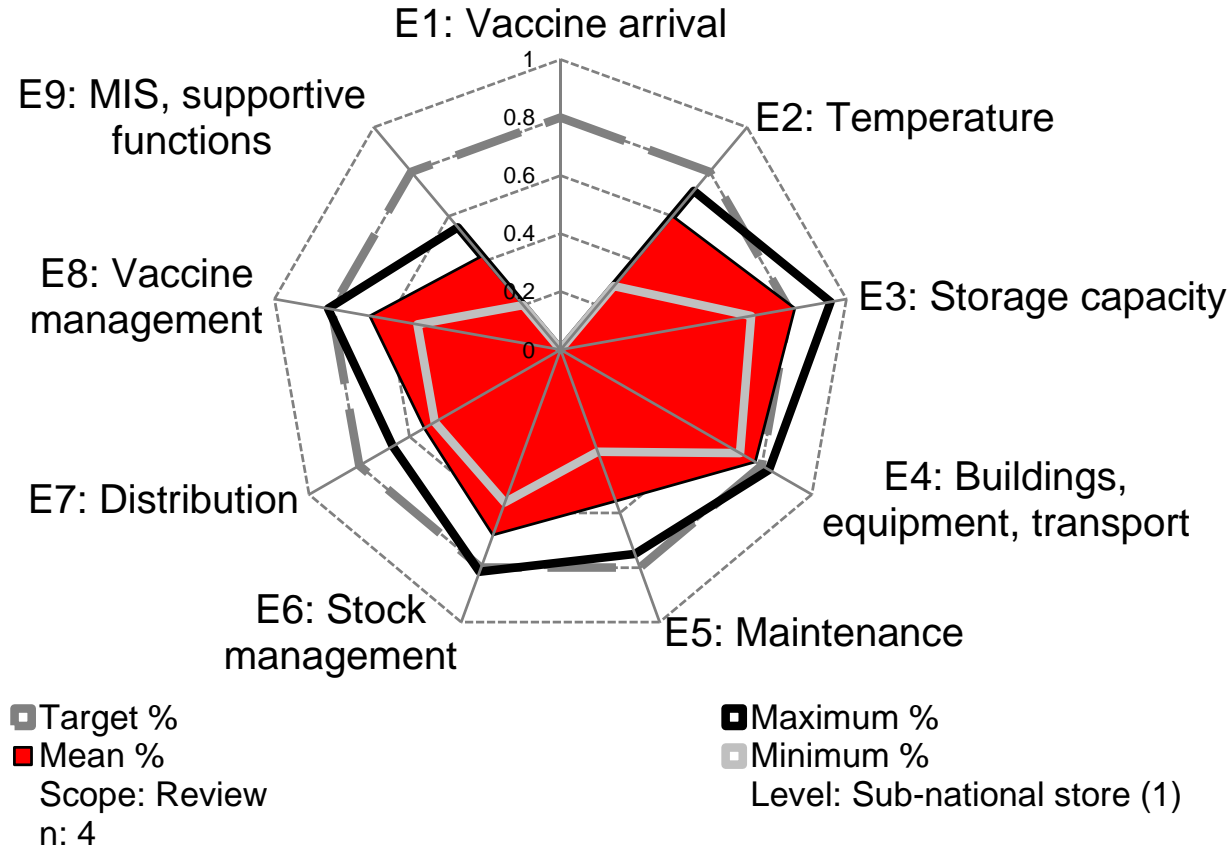
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2017 EVM Assessment outcomes-Provincial Depot level



Criteria Scores



Key findings:

Strength- Infrastructure Capacity & quality, maintenance and stock management exceeding the 80% scores in most indicators

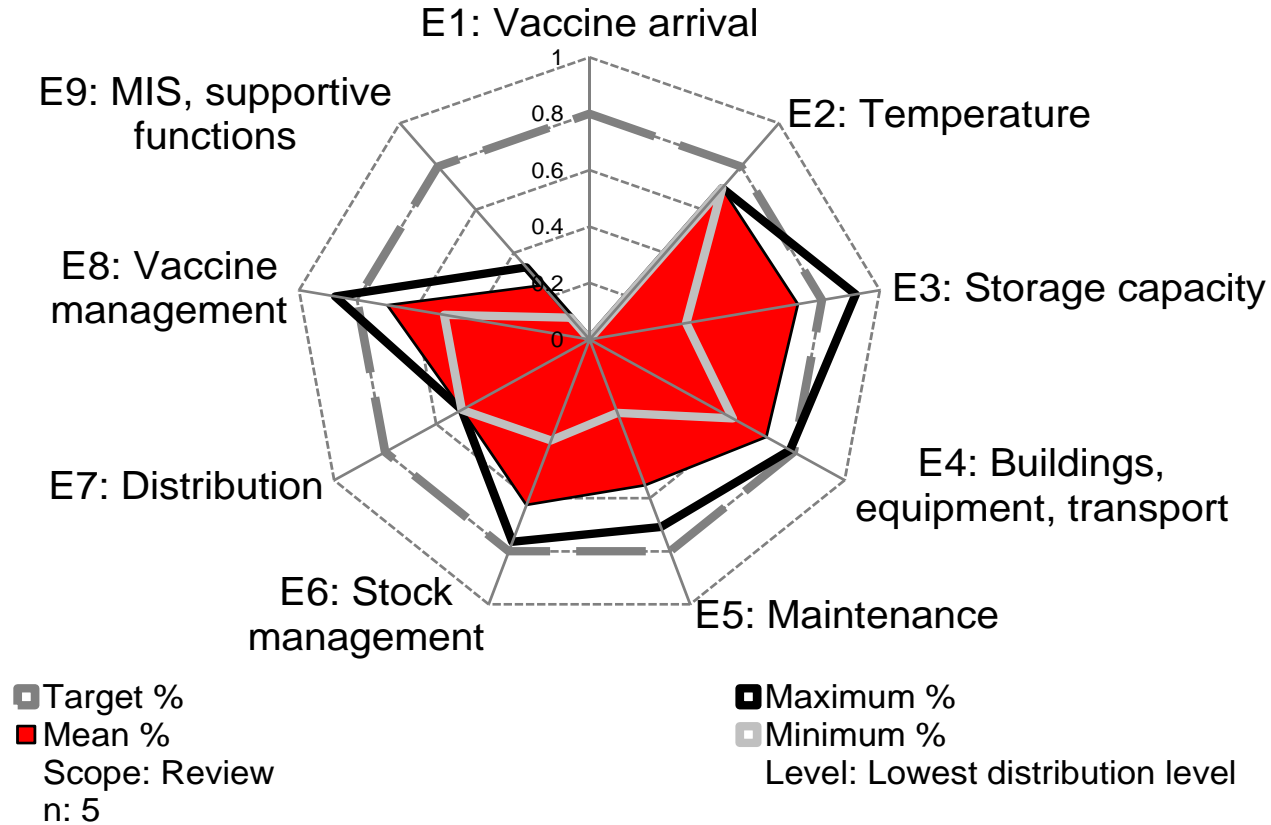
Weakness: Storage temperature, Maintenance & Distribution Management, Vaccine management and Information System & supportive functions criteria are below the 60% benchmarks set to achieve or exceed.

	Criteria								
	E1	E2	E3	E4	E5	E6	E7	E8	E9
Scores	N/A	60%	82%	77%	56%	68%	54%	67%	42%

2017 EVM Assessment outcomes-district depot level



Criteria Scores



Key findings:

Strength- Storage temperature, Infrastructure Capacity & quality and vaccine management policy and procedures above 70% scores.

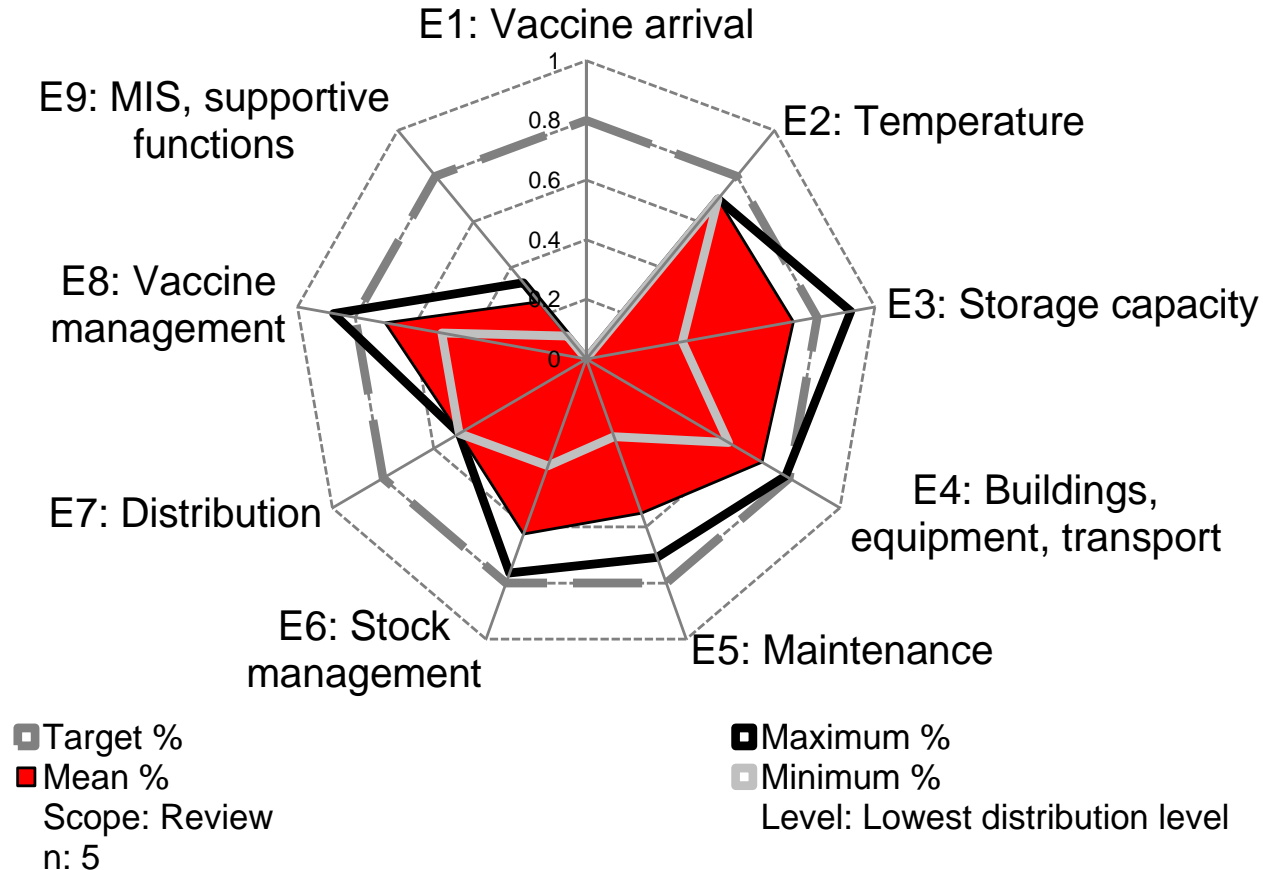
Weakness: Maintenance & Distribution Management and Information System & supportive functions criteria are below the 60% benchmarks set to achieve or exceed.

	Criteria								
	E1	E2	E3	E4	E5	E6	E7	E8	E9
Scores	N/A	70%	72%	69%	55%	63%	50%	70%	25%

2017 EVM Assessment outcomes-service delivery level



Criteria Scores



Key findings:

Strength- Storage temperature, Infrastructure Capacity & quality and vaccine management policy and procedures above 70% scores.

Weakness: Maintenance & Distribution Management and Information System & supportive functions criteria are below the 60% benchmarks set to achieve or exceed.

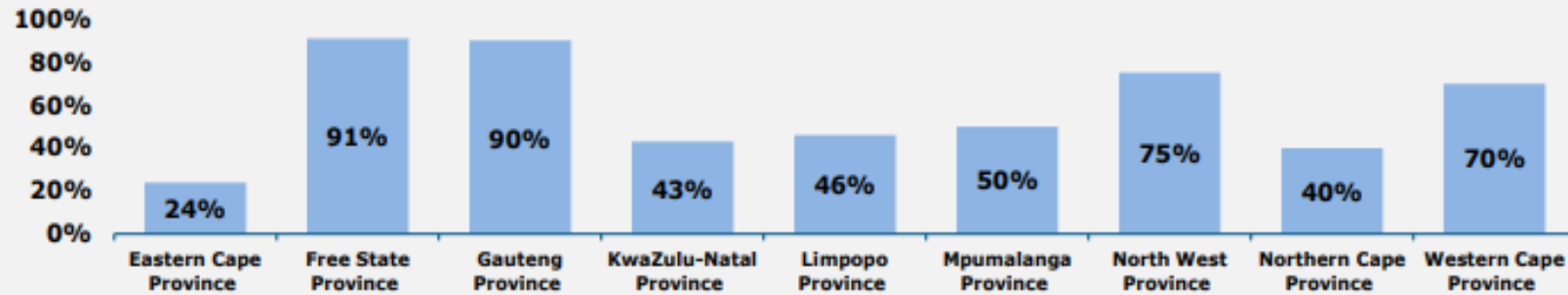
	Criteria								
	E1	E2	E3	E4	E5	E6	E7	E8	E9
Scores	N/A	67%	61%	67%	55%	43%	61%	70%	25%

2020 cold chain inventory outcomes – Vaccine fridges

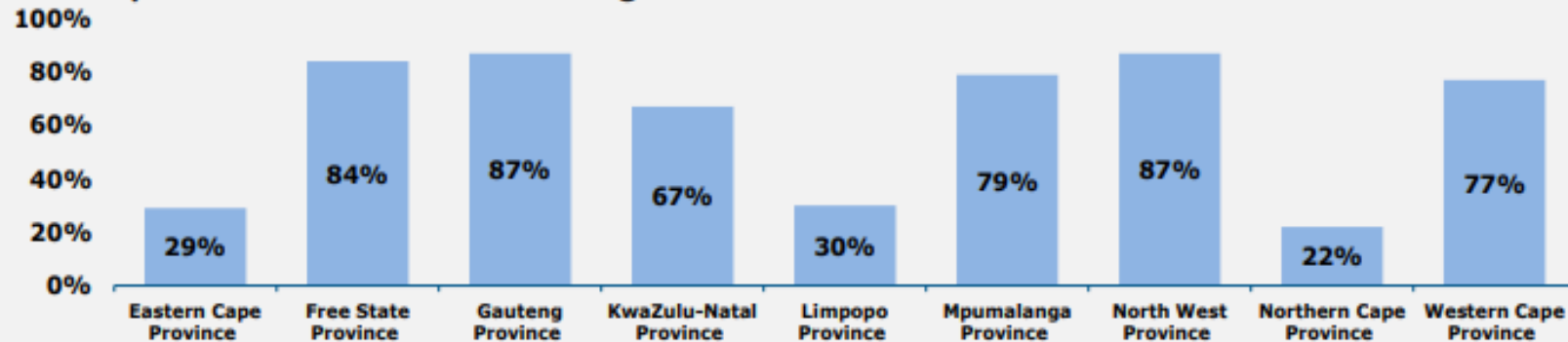


Working vaccine fridges

% of public hospitals with vaccine fridges



% of public clinics with vaccines fridges



Key Comments

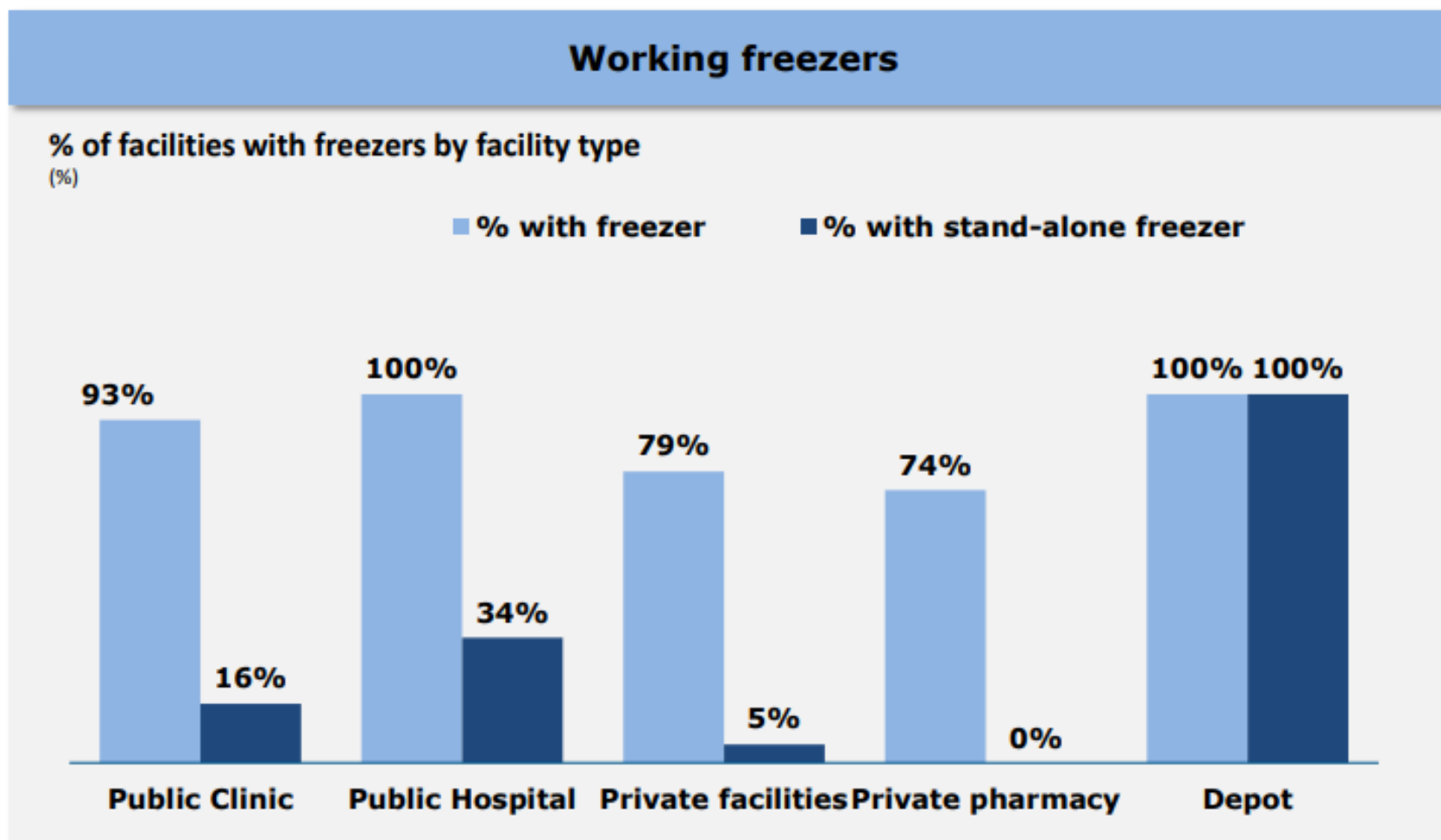
- The challenge in hospitals are the vaccine fridge are large glass double door. These are required for volume and accessibility in the facilities
- Clinics have a higher level of vaccine fridges with significant focus on Minus40 combination fridges but are utilizing sealed non-glass door domestic fridges if no vaccine fridge is present



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2020 cold chain inventory outcomes – Freezers



Key Comments

- All public facilities have a working freezer.
- All depots have a dedicated freezer for the polio vaccine.
- 34% of public hospitals have a dedicated freezer which is more reliable to control temperature than a combination fridge and freezer.

Facility	# of facilities	Sample %	Facilities requiring freezers ¹
Public CHC & Hospitals	808	66%	533



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2020 cold chain inventory outcomes

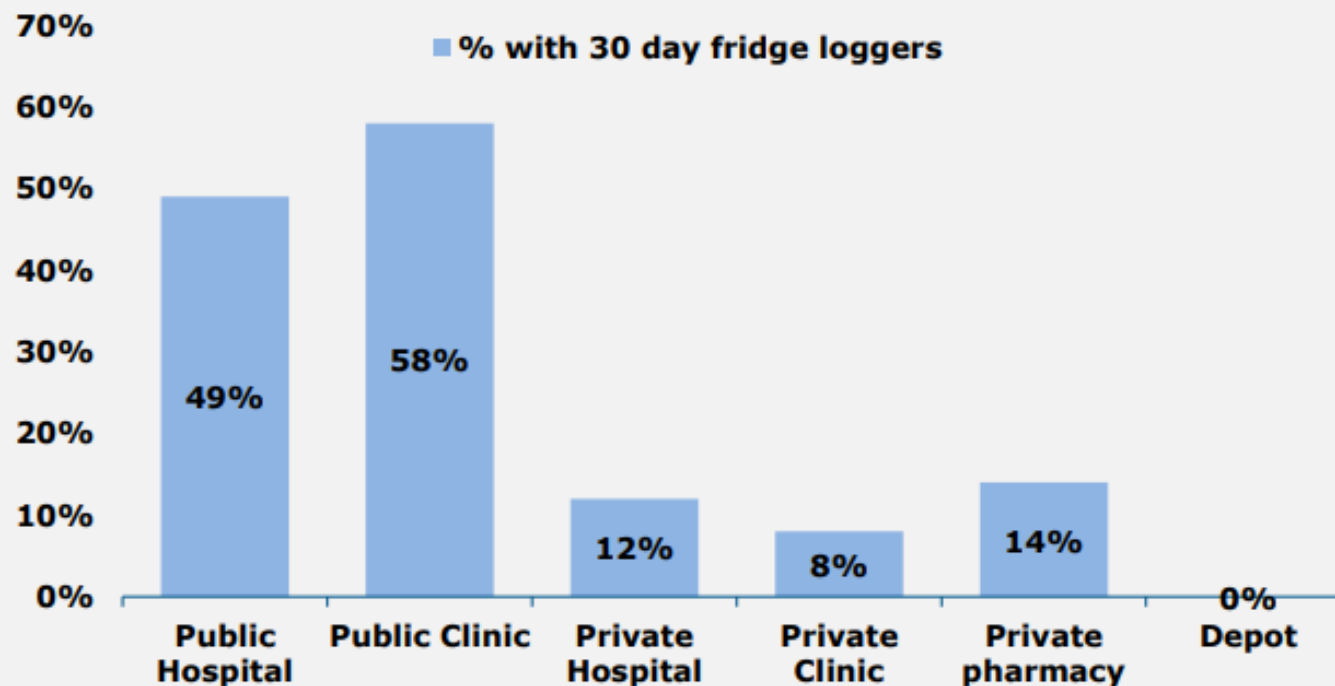
Continuous temperature monitoring devices



Cold chain monitoring devices

% of facilities with 30 day 'fridge loggers'

(%)



Key comments

- All facilities have fridge temperature monitoring
- 85% of private facilities have a link to electronic temperature monitors that are linked to alarms
- 49% of public Hospitals have fridge tags and 58% of Public Clinics that are utilized

Facility	# of facilities	Sample %	Facilities requiring fridge-tags ¹
Public CHC & Hospitals	808	51%	412
Public Clinics	3982	42%	1672



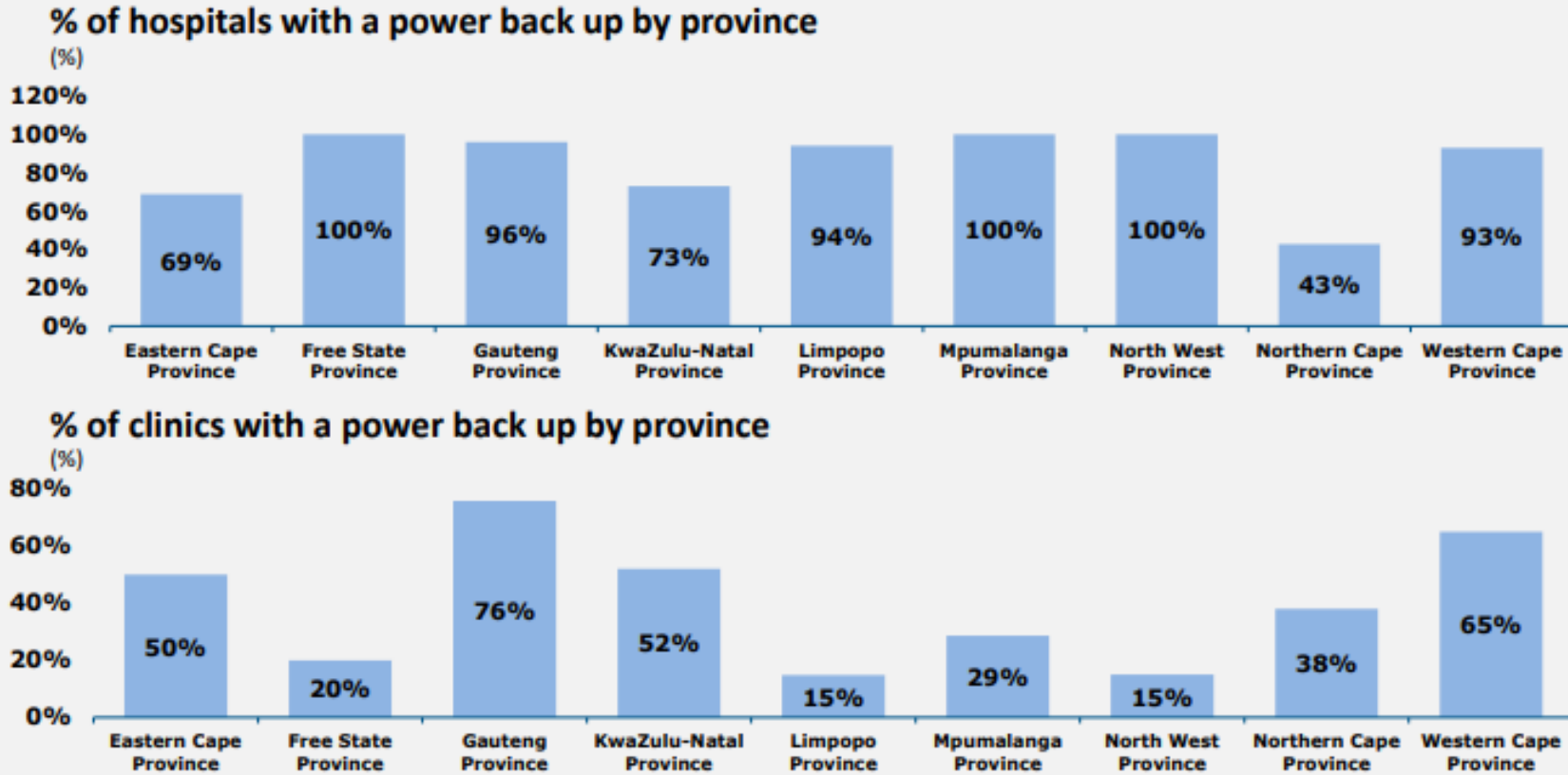
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2020 cold chain inventory outcomes - Back-up power



% of facilities with a back up plan (generator) by province



Key Comments

- Majority of hospitals have working generators as power back ups in 7 provinces
- North West Province has the lowest percentage of clinics with power back up



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2020 cold chain inventory outcomes – Gaps identified

Equipment

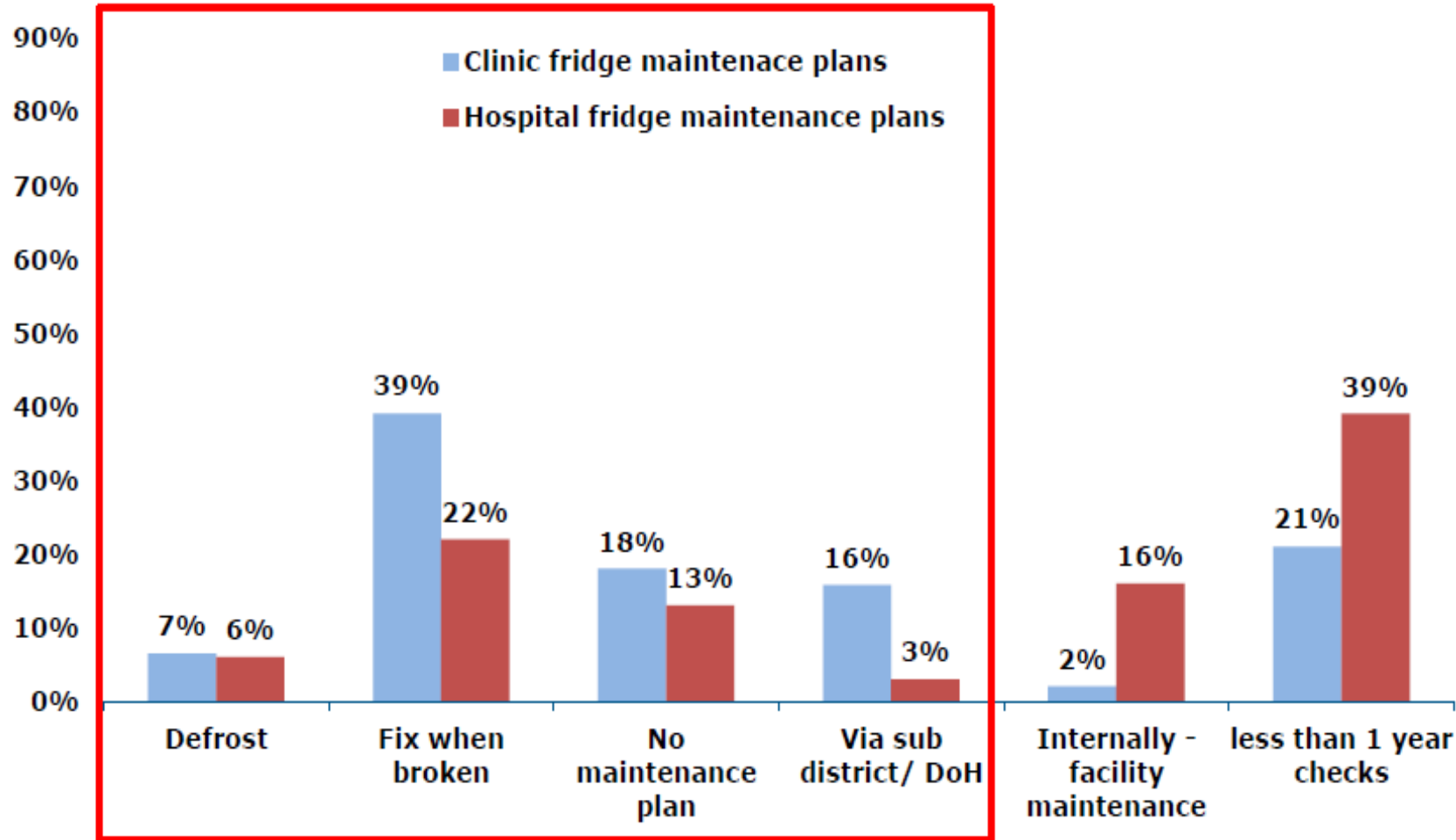
Insufficient working fridges	33% of Clinics & 43% of hospitals do not have dedicated vaccine fridges, (31% of clinics only have 1 fridge)
Fridge capacity constraints	Fridges are over stocked with 38% of clinics and 29% of hospital fridges with a used capacity above 75%
Freezer presence	Only 34% of hospitals have a dedicated standalone freezer
Temperature gauges	51% of CHCs and hospitals and 42% of clinics have no fridge tag monitoring devices
Ice packs	There is a significant presence of gel-packs with insufficient ice packs across all facilities
Cooler boxes	37% of clinics and 39% of hospitals are using polystyrene cooler boxes



2020 cold chain audit - Maintenance plan



Maintenance plan for the fridges (%)



Comments

- A significant percentage of facilities had their fridges attended to only when an issue is raised
- Public clinics have 59% of facilities that have insufficient maintenance plans in place

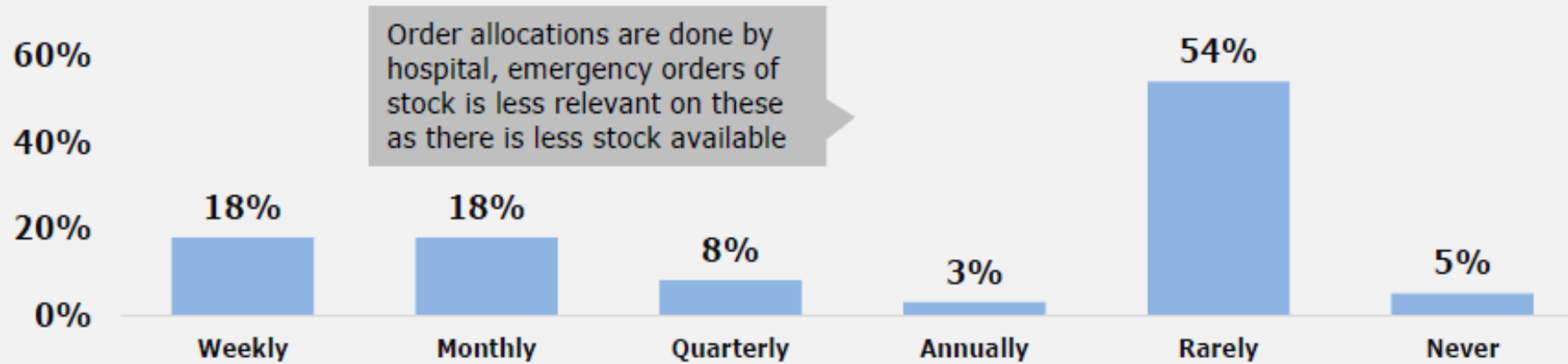
Facility	# of facilities	Sample %	Facilities requiring Maintenance plans ¹
Public CHC & Hospitals	808	44%	357
Public Clinics	3982	78%	3089

2020 cold chain audit – Vaccine stock outs

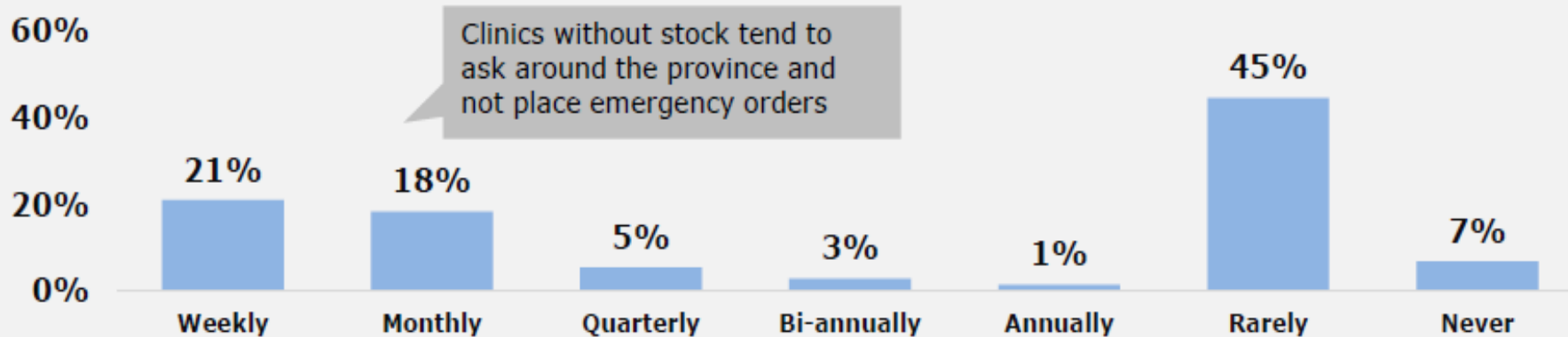


Stock outs, how often facilities order emergency stock

Hospital frequency for placing emergency orders



Clinic frequency for placing emergency orders



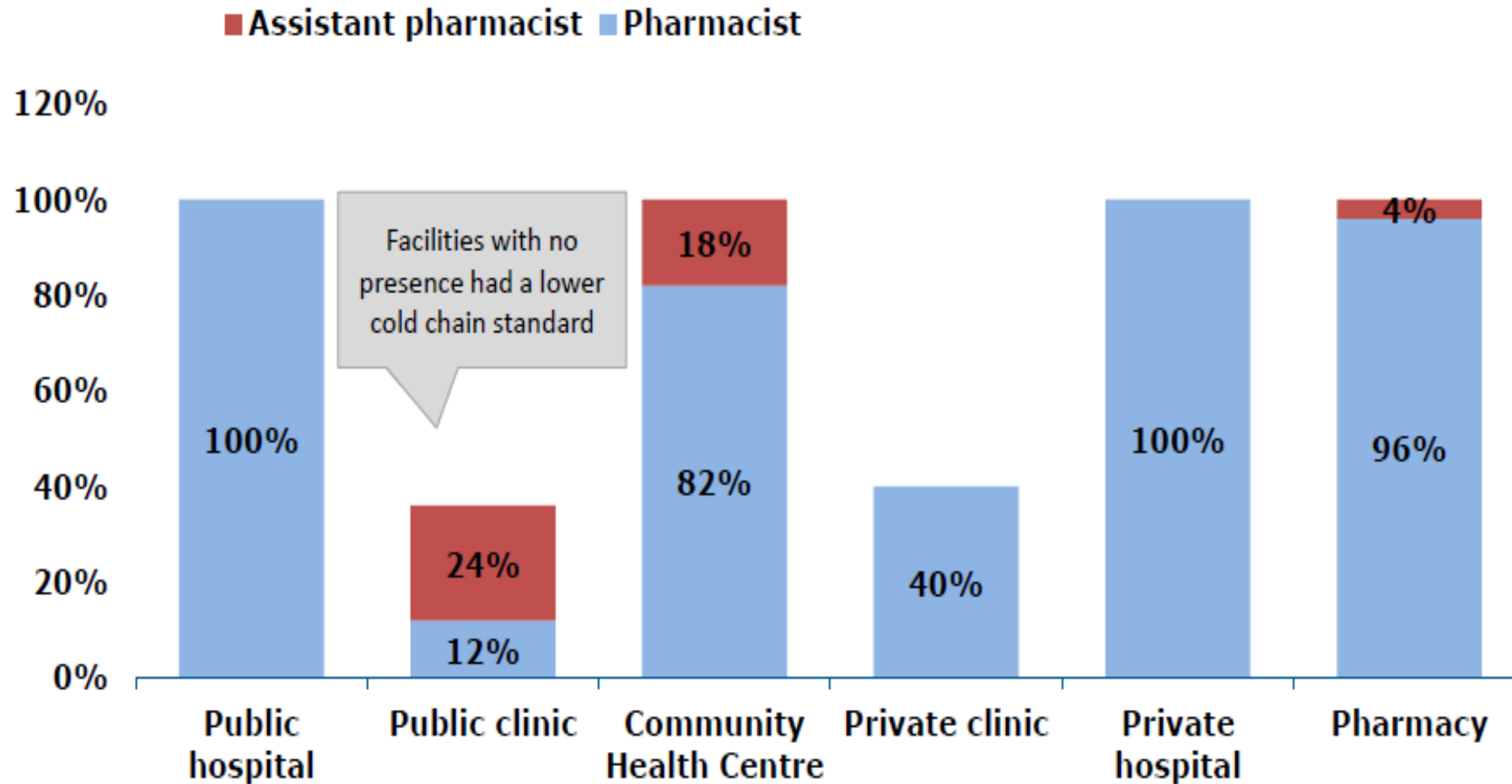
Key comments

- Frequency of emergency orders is higher in facilities who are close to the sub-depot
- Cold chain stock shortages limit emergency orders as stock available is delivered through allocations
- Stock shortages are resolved through finding stock amongst nearby facilities and not ordering emergency stock
- Most emergency stock requires the use of personal cars to fetch stock

2020 cold chain audit – Pharmaceutical support



% of facilities with a present qualified pharmacists
(%)



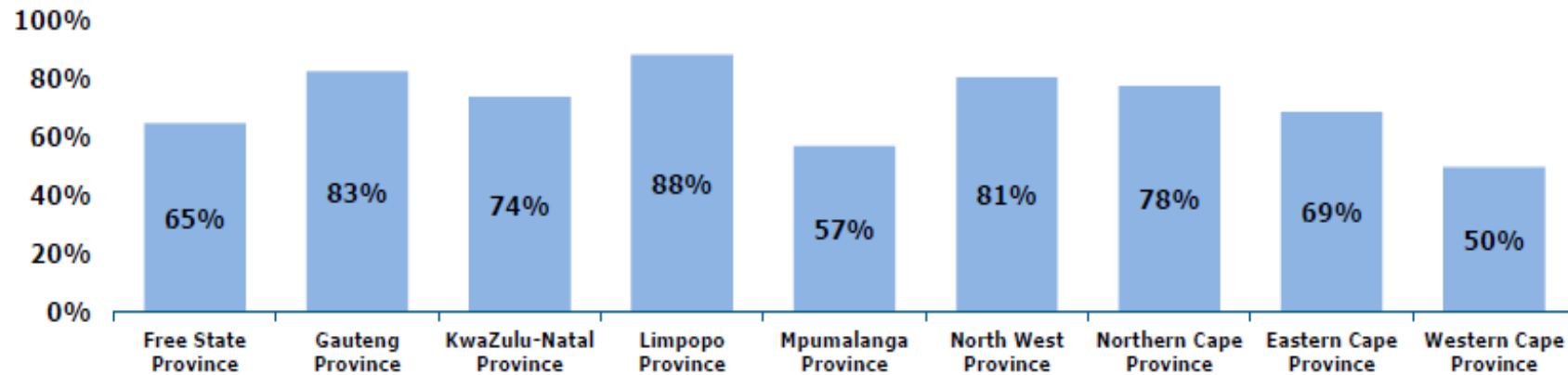
Comments

- Hospital and community health centre pharmacies are largely run by responsible pharmacists
- Public clinics have 64% of facilities run by professional nurses
- The level of cold chain capability is higher when at least an assistant pharmacist is present

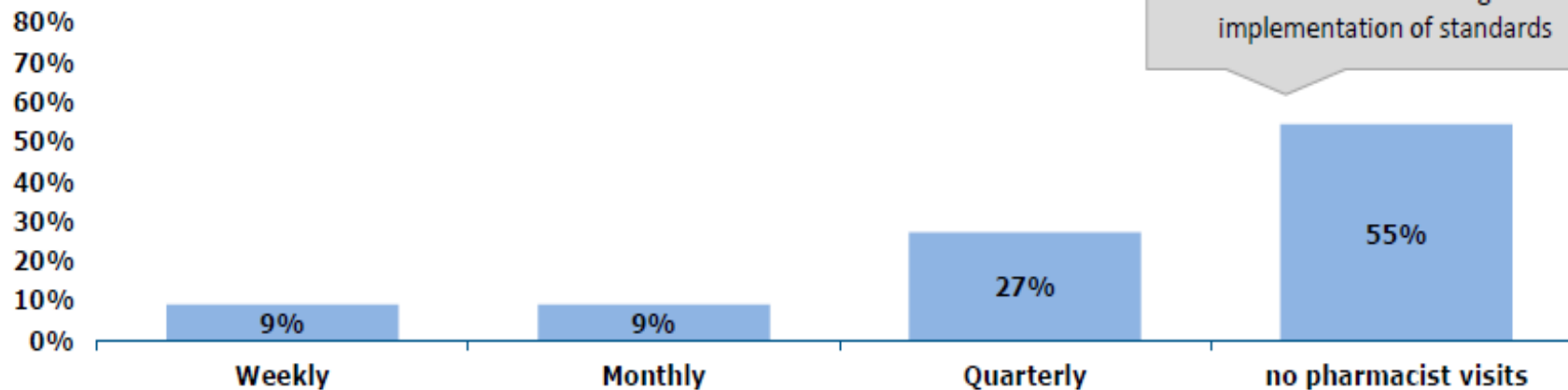
2020 cold chain audit – Pharmaceutical support



% of public clinics with support from a pharmacist (%)



% of public clinics with no pharmacist that receive pharmacist visits (%)



With no pharmacist oversight, cold chain was at a lower standard with less cold chain training and implementation of standards

Comments

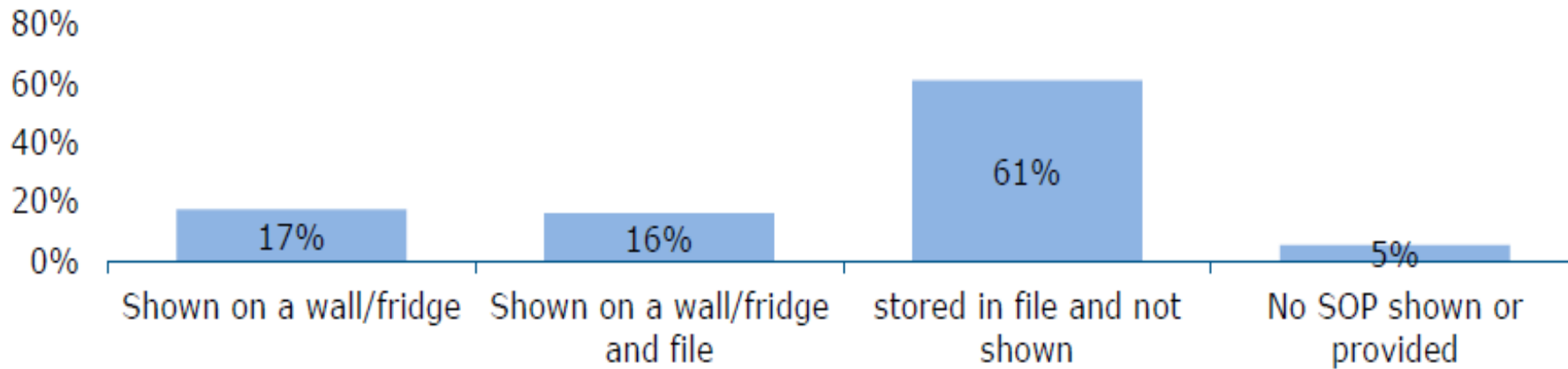
- Generally practices such as stock take, training and cold chain procedures were followed more effectively with regular oversight from a pharmacist
- Only 18% of facilities had a pharmacist visit at least once a month and 55% do not receive oversight

2020 cold chain audit – SOP



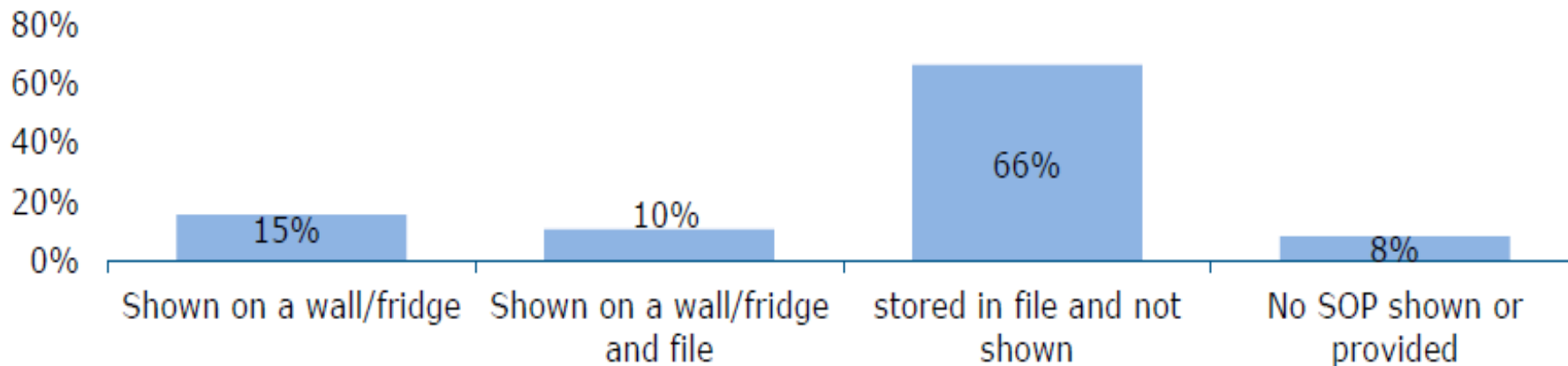
How Hospitals keep SOP guidelines

(%)



How Clinics keep SOP guidelines

(%)



Comments

- A significant number of facilities were found to keep the SOP in a file far from immediate reach
- Training material is available in folders but only 25-33% of facilities have it shown
- Although the SOPs are available and even shown, not all cold chain procedures are followed correctly

2020 cold chain audit – Gaps related to training, transport and other



Training	Low frequency of training	18% of facilities have no training with only 46% having quarterly trainings or better 63% of facilities have SOPs that are not shown and definite cold chain implementation challenges
	Pharmacist presence	64% of public clinics have no pharmacist presence with 55% of those having no oversight from a pharmacist
Transport	Vaccine stock turnover	There is a high volume of average stock with high supply intervals requiring large stock requirements and significant risk of stock outs
	Cold-chain procedures	Temperature is not monitored adequately and there is a lack of SOPs followed at delivery of the vaccines
Other	Maintenance plan	78% of clinics and 44% of CHCs and hospitals have insufficient maintenance plans and 17% of hospitals have a non-working fridge
	Power back ups	61% off clinics have no power back up and require generators and 19% of public hospitals and CHCs



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What does healthcare workers say?



“About cold chain management and vaccine management, I think people's eyes were opened, I didn't realise how much went into managing the cold chain.”

“I think COVID-19 pandemic demonstrated some cracks in education and skills around cold chain management”

What is the procedure when cold chain is delivered: “We receive the stock and if its cold we put it in the fridge. If there is a temperature monitor we check that”

How do you pack vaccines?: “frozen ice pack in a cooler box with the vaccines.”



Immunisation supply chain essentials...



Six essentials include:

- **System design including** supply chain performance and resilience
- **Cold Chain equipment:** Reliable, well-maintained and cost-effective cold chain equipment
- **Temperature management:** avoid vaccine wastage due to exposure to heat or freezing temperatures
- **Distribution:** effective transport of vaccines between each level
- **Human resources:** competent managers as well as adequate numbers of skilled, accountable and motivated staff
- **Data:** vaccine availability or stock management efficiency

Importance of Effective Vaccine Management



- **Effective vaccine management is the foundation of effective immunisation programmes:** Ensures effective vaccine storage, distribution, handling, and management.
- **Temperature Control:** Maintains rigorous control in the cold chain to preserve vaccine efficacy.
- **Logistics Management:** Uses logistics management information systems for resilient and efficient operations, minimizing the resources required in immunisation programmes
- **Uninterrupted Vaccine Availability:** Ensures quality vaccines are available from the manufacturer to service-delivery points, preventing missed vaccination opportunities.
- **Response to Increased Demand:** Adapts to new vaccine introductions, delivery strategies, and technological advances in cold chain equipment. – Ensuring future pandemic preparedness



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Importance of Effective Vaccine Management



- **Ensure compliance with country standards:** Compliance with regulation including Medicines and related substances act, Pharmacy Act (Good Pharmacy Practice) and relevant Standard Operating Procedures
- **Alignment with IA2030:** Supports the Immunization Agenda 2030 by integrating immunisation supply chains into primary health care to achieve universal health coverage.
- **Infrastructure Investment:** Emphasizes the need to invest in systems and infrastructure to manage and dispose of vaccine waste responsibly.
- **Ensure competent well train healthcare workers available at all levels, that are skilled, accountable and motivated**



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Thank You