

Logistics Management Techniques & Technologies for Improving Quality of Care

The Kenya Experience

Presented at

**The Conference of Health Ministers
Commonwealth Regional Health Community Secretariat
for East, Central and Southern Africa**

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FPLM

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' with contemporary demands for increased customer service, greater efficiency, and reduced costs-- distribution systems are increasingly being viewed as the backbone of successful business '

James A Tompkins & Dale Harmelink *The Distribution Management Handbook* McGraw Hill Inc 1994

'Logistics managers must fully exploit the capabilities of information processing & communications technologies This will require greater involvement in the design of management information systems '

James H Perry Emerging Economic & Technological Futures Implications for Design & Management of Logistics System in the 1990s *Journal of Business Logistics* vol 12 no 2 (1991) p 14

Acknowledgments

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Logistics & Quality of Care

A. What is Logistics?

The business of ensuring that high quality commodities are available in the right place, at the right time and in the right quantities.

B. Why is Logistics Important for Quality of Care?

- From the **service provider** perspective, unless commodities are available, services are not provided
- From the **client perspective**, there is substantial evidence that unless there are drugs in the clinic, clients do not come to the clinic
- Thus, public health interventions in preventive and promotive health care are heavily dependant upon the sustained availability of drugs

It is therefore conclusive, that a well functioning logistics system is critical to achieving and sustaining high quality care.

C. Common Constraints to Improving Logistics in the Region

- Logistics systems are generally assumed to be functioning well by both donors and Ministries of Health Likewise, it is often assumed that existing systems can absorb huge increases in commodity flow
- New initiatives in Health Sector Programmes, particularly in Family Planning and Reproductive Health, tend to focus on expansion of services but take logistics for granted, resulting in greater stress being placed on existing logistics systems
- At the operational level, Central Warehouses (and MOHs) do not know what the actual need is at district level, nor do they know what is already available at that level
- Distribution systems are generally not **service** oriented
- Under these circumstances, distribution is often based on inefficient pre-allocation systems that result in overstocking in some cases and stock-outs in others with immediate and detrimental effects on quality of care

**In summary,
distribution centres are unaware of
client needs and are not service oriented.**

D. Strategies to Improve Logistics & Quality of Care: The Kenya Experience

I. Create Service Orientation

Instilling and adopting new concepts of “service” within a supplies profession which has existed for decades under a passive and unmotivated environment, as a means of improving commodity distribution and tracking efficiency, is a long term process

The public sector storeman typically understands that his role is to “hold” stock, indeed that he should “hold **on**” to stock, and that the more stock he has on hand, the better job he is doing

Abandoning this entrenched perception through recognition and acceptance that health facilities are his “clients” and that his new role is to ensure that his clients are continuously stocked, requires a radical and difficult transition, and facilitating this long term process requires comprehensive planning and multiple interventions

- **Formal & Informal Logistics Management Training**

Over the past six years, more than 4,000 supplies officers, storemen and service providers have been trained in logistics management in formal workshop settings

Current curricula are competency based and emphasize skill transfer so that participants can train their colleagues when they return to their stations. It is anticipated that due to high attrition rates in the field, this need will be ongoing in the medium term until logistics management becomes fully integrated into MOH pre-service and in-service clinical training curricula

Logistics & Quality of Care

Informal on-the-job training is on-going during all distribution and supervision activities and is expected to continue in the long term

- **Operationalize the Link Between Reporting & Re-Supply**

A very successful tool in building supplier/client relationships is the contraceptive quarterly report, which, in addition to monitoring commodity stock and issue information, is also a requisition form - thus service providers rely on their reporting effort as a means of ensuring continuous supplies (See Appendix I)

II. **Distribute Commodities Based on Need**

In contrast to the long term and incremental improvement in logistics management through creation of a service orientation, exponential improvements over a relatively short time frame have been achieved through the implementation of a dynamic, **locally designed and maintained**, Logistics Management Information System (LMIS) (See Appendix II)

- **Private Sector Logistics Techniques & Technologies**

The LMIS is an example of successfully applied cutting edge, **private sector**, logistics management techniques to a public sector programme. The LMIS replaces the obsolete re-order point system with Distribution Resource Planning (DRP) -- generating up-to-the-minute, precise information on stock levels in regional warehouses and district stores on a continuing basis. The DRP enables distribution managers to maximize vehicle capacity and routing efficiency to anticipate and prevent shortages and stockouts (See Appendix III)

- **Reducing Costs**

The DRP **saves money**. In the case of STD drugs, because DRP tracks drugs to the end user, the Division of Family Health found that Health Centres actually need only 10% of the drugs that project planners thought they would require based on information available at the time of project design. This has enabled the DFH to increase the number of project sites dramatically and extend the project life without additional funding (See Appendix III)

Logistics & Quality of Care

- **Improving Product Quality**

The Inventory Control System (ICS) module of the LMIS tracks central level inventory by batch numbers and expiry date. This ensures that the FEFO (First Expiry First Out) policy is always followed in order to guarantee that shelf lives are not compromised. (See Appendix IV)

The DRP, together with supervised distribution and monitoring, improves quality of care by sustaining the availability of commodities, by maintaining product integrity (safety and efficacy) and by shortening the pipeline and improving storage conditions.

- **Projecting National Requirements**

As programmes expand and the volume of commodities flowing through the distribution system increases, the ability to reliably project future requirements to prevent shortages and stockouts becomes critical.

The Kenya ForeCast module of the LMIS has proven invaluable in coordinating traditional donor commitments and facilitating commitments for contraceptives from new donors during a period of substantial increase in commodity demand. (See Appendix V)

The Eritrea ForeCast System is designed to enable the Central Medical Stores to project national essential drug requirements for government health centres and health stations. (See Appendix V)

E. Measuring and Disseminating Logistics Improvements

The Ministry of Health and supporting donors need to know to what extent their collective investment in logistics improvements pays off in terms of programme impact

Measuring impact is critical to sustaining donor support in the medium term and building policy support to increase government investment in improved logistics management in the longer term

- **PreSent Module of the LMIS**

The PreSent module of the LMIS takes the **same data** used for the DRP and presents it in a way that programme managers and donors can clearly see the impact of improved logistics on availability and off take of commodities (See Appendix VI)

Appendix I

**Republic of Kenya
Ministry of Health
Quarterly Report & Request for Contraceptives**

The same Quarterly Report is institutionalized at each level in the distribution system from Central Warehouse to service delivery site, maintaining the vital link between reporting and re-supply throughout the distribution system

REPUBLIC OF KENYA
MINISTRY OF HEALTH

Revised 5/95
ORIGINAL

QUARTERLY REPORT & REQUEST FOR CONTRACEPTIVES

Province _____ District _____ Name of SDP/Clinic _____

Registered Number of SDP _____

Facility Type Depot District Store Other Store SDP/Clinic GOK NGO Private

Report of Quarter Beginning _____ 19 _____ Ending _____ 19 _____

Contraceptive	Beginning Balance	Received This Qtr	Dispensed/ Issued	Losses	Ending Balance	Quantity Needed
Microgynon						
Neogynon						
Eugynon						
Microlut						
Nordette						
Logynon						
Trinordial						
Total Pills	X	X	X	X	X	X
Depo-Provera®						
Noristerat						
NORPLANT®						
Copper T						
Nova T						
Multi-Load						
Condoms						
Foaming Tablets						
Gloves						

New Clients	
Revisits	
Sterilization Referrals	
Natural FP Referrals	

Sterilization	
Male	Female

Explanation of Losses _____

Submitted By
Name _____
Signature _____

Designation _____
Date _____

Appendix II

Technical Description of the Logistics Management Information System (LMIS)

The LMIS provides the impetus for logistics improvements and is under continuous development to meet new challenges

Logistics systems can always be improved. Managers constantly need to test more efficient and cost effective ways of servicing their clients. Logistics software technologies, used to support logistics systems, **must** be adaptable to the local environment and be able to respond to rapidly changing needs and responsibilities.

The LMIS is a dynamic, user friendly **locally developed and maintained** software, designed and programmed in Clarion for DOS Version 3.0. Clarion is a full-featured Rapid Application Development tool that comprises a) a versatile Relational Database Management System which supports multiple database drivers including dBASE, FoxPro, Paradox, Clarion and TopSpeed, b) an easy to use Fourth Generation Language and c) a powerful Application Generator that creates native executable files. Its fast and efficient compiler technology enables the programmer to make even major systems development changes in a very short time.

Clarion runs on both MS-DOS and Windows platforms and requires only 8MB of RAM and 10-20MB of hard disk space.

Building on the current LMIS for contraceptives and STD drugs, the Logistics Management Unit of the Division of Family Health is currently developing logistics management software for essential drugs and vaccines.

Appendix III

LMIS

Distribution Resource Planning (DRP) Module

The Distribution Resource Planning (DRP) module for contraceptives prioritizes regional and district stores' distribution requirements based on their current estimated stock levels. The software utilizes data from the stores' Quarterly Reports and the latest Physical Stock Counts (which are carried out every time a store receives a delivery) to estimate each store's daily stock balances.

Using the estimated months of stock on hand in three indicator commodities (condoms, Depo Provera® and low dose pills) the system calculates the date when a store is likely to go below a three month "minimum" stock level in any of these items and uses the date to prioritize the stores' delivery schedule.

The DRP maximizes vehicle capacity and routing efficiency by allowing distribution managers to select a priority store and choose from available distribution vehicle capacities. The system then gives the option to automatically select any other stores that fall on the same distribution route which can also be served during a distribution trip. The system instantly generates packing lists for each destination along the route in the order in which the truck needs to be packed to match the route. It also calculates the total trip mileage and the number of days required to complete the trip.

The DRP module for STI drugs tracks individual kit items to the end user by facility. This enables the repackaging of standardized kits into customized kits to meet the individual needs of service delivery sites, and minimize drug wastage.

- Distribution managers are aware of district stock levels at any given time and quantities required for a six month supply.

DISTRIBUTION RESOURCE PLANNING					
21 NOV 1996		12:40PM		MERU DISTRICT STORE	
COMMODITY	AV: QUARTERLY DISTRIBUTION	BALANCE ON 30 OCT 96	CURRENT EST. BALANCE	QUANTITY REQUIRED	PACK
CONDOMS	180,450	366,000	321,890	44,200	
DEPO-PROVERA	13,500	22,500	19,200	7,900	
LOW DOSE OCs	37,450	0	0	75,000	
Microlut/val	0	600	600	0	
Trinordial	350	4,200	4,114	0	
NORPLANT	0	0	0	0	
Copper T	80	340	320	0	
Gloves	3,387	7,650	6,822	0	

Latest 2 QRS: Q3, 1996
Q2, 1996

Ok Cancel Print

Figure 1: DRP Screen showing a store's current estimated balance and requirements based on quarterly distribution and latest physical count.

- In the event of central level shortages or stockouts the **DRP** enables managers to re-distribute among district level stores to prevent stockouts.

RE-DISTRIBUTION PROJECTIONS						
DISTRICT UASIN GISHU						
TARGET MONTHS OF STOCK : 6 DATE DUE 20 DEC 1996						
STORE NAME	CONDOMS	DEPO	LOW DOSE			
NAKURU DISTRICT STORE	230,500	4,800	23,315	Quarterly Average		
KAKAMEGA DISTRICT STO	206,038	1,426	58,329	Current Balance		
KILIFI DISTRICT STORE	259,200	8,200	0	Required		
NANDI DISTRICT STORE	0	0	11,400	Available		
EPAK CENTRAL STORES						
MACHAKOS DISTRICT STO						
KIRINYAGA DISTRICT ST						
TEN DISTRICT STORE						
BAHATI STORE						
KAPENGURIA DISTRICT S						
ELDORET DISTRICT STORE						

	Condoms	Depo	LowDose	Prog. Pills	IUCDs	Gloves
Req	9,511,200	391,700	154,800	168,000	13,428	301,050
Ava.	12,196,800	144,200	265,200	55,200	16,200	222,750

Figure 1 **DRP Re-distribution Screen showing quantities of commodities available for district level re-distribution.**

- The DRP prioritizes district distribution and distribution managers are able to maximize vehicle capacity and routing efficiency. Packing lists are generated instantly, together with information on distances and number of days the distribution trip will take.

DISTRIBUTION RESOURCE PLANNING

STORE	ROUTE	DATE	DUE	
KISII DISTRICT STORE	6	27	DEC 1996	Vehicle <input type="radio"/> Trooper <input type="radio"/> 3 Tonner <input type="radio"/> 5 Tonner <input checked="" type="radio"/> 9 Tonner <input type="radio"/> Other Capacity* 1,279 41cu ft Percentage Full <div style="border: 1px solid black; width: 100px; height: 10px; background-color: black; display: inline-block;"></div> 99% Total Stores Selected 3 Total Volume 1,267 10 cu ft
PCEA CHOGORIA STORE	2	1	JAN 1997	
BOMU MKOMANI STORE	8	2	JAN 1997	
NGARA NCC DIV. II STORE	1	3	JAN 1997	
MAKUENI DISTRICT STORE	7	3	JAN 1997	
PHS	1	4	JAN 1997	
TAITA-TAUETA DISTRICT S	8	18	JAN 1997	
MAENDELO YB WANAKAKE	1	28	JAN 1997	
MOMBASA DISTRICT STORE	8	30	JAN 1997	

Select Store

De-Select Store

View Store Info

View Route Info

STD/HIU Details

Select All

De-Select All

Flip Selections

Change Order

STD Packing List

Select Route

Auto-Select

FP Packing List

STD/HIU DRP

Exit

Figure 1 This DRP Screen shows the automatic selection of additional stores on route to the priority store to maximize vehicle capacity and routing efficiency

DISTRIBUTION RESOURCE PLANNING

24 NOV 1996 VIEW DISTRIBUTION ROUTE INFORMATION 2:42PM

Store	Volume	Perc.	Distance	Day
TAITA-TAUETA DISTRICT STD	92.90 cu. ft	7.26 %	480 km	2
BOMU MKOMANI STORE	963.40 cu. ft	75.30 %	760 km	3
MOMBASA DISTRICT STORE	232.40 cu. ft	18.16 %	760 km	3

Total Number of Stores 3

Total Trip Days 5

Total Volume 1,288.70 cu ft.

Total Distance 1,260 km

Exit

Print Route Info

Figure 2 This View Screen shows routing information for the trip

- The DRP module tracks the usage of STD drugs by item and by facility and enables logistics managers to maximize availability of drugs while minimizing wastage.

UPDATE STD KIT BALANCES								
ALUPE H/C			BUSIA					
<input type="button" value="Insert New Balances"/>			20 JUN 1996 - 2 DEC 1996			<input type="button" value="Ok"/>		
<input type="button" value="Change Existing Balances"/>			28 MAR 1996 - 18 JUN 1996					
<input type="button" value="Delete Balances"/>			28 DEC 1995 - 27 MAR 1996			<input type="button" value="Cancel"/>		
Begin Date 20/06/1996 Date Applied. / / Ending Date. 2/10/1996								
	Balance B/F	Received	Dispensed	With drawn	Adjust ments	Ending Balance	Monthly Usage	MOH
Orflox	1,456	1,200	1,456	0	0	1,200	420	3
Dofycyc	4,200	4,200	4,200	0	0	4,200	1,212	3
Erythro.	6,000	6,000	6,000	0	0	6,000	1,731	3
Etron.	6,000	6,000	6,000	0	0	6,000	1,731	3
Nystatin	4,244	2,800	2,105	0	41	4,980	607	8
Amphotericin	200	200	200	0	0	200	58	3
Lowest MOH		3	Norfloxacin		Stock Out Date. 26 DEC 1996			
Highest MOH		8	Nystatin		Average MOH. 4			

Figure 1: STD Kit Balances Update Screen showing a health facility's drug kit usage and stock status

Appendix IV

LMIS

Inventory Control System (ICS) Module

The Inventory Control System (ICS) Module of the LMIS tracks contraceptives and drugs by batch number and expiry date. It records the receipt, issues and balances of each commodity at the Central Warehouse. The system generates electronic bincards for each item to better manage and account for contraceptives and drugs.

By tracking the batch number and expiry date of commodities the ICS ensures adherence to the FEFO (First Expiry First Out) policy in distribution and minimizes expiration of commodities at both warehouse and facility levels. The ICS also uses the available distribution data to estimate numbers of months on hand for use in estimating future commodity requirements.

- ICS electronic bincards track commodities by batch number and expiry to ensure product shelf lives are not compromised.

View Batch History

Commodity	DIFLUCAN	Expiry Date	05/2000
Batch Number	50065	Quantity Received :	3,745
Date Received :	6 SEP 1996	Quantity Adjusted	0
Quantity Issued	1,189		

Date	Facility	Quantity
28 OCT 1996	MISSION FOR ESSENTIAL DRUGS	745
7 NOV 1996	EMBU PROVINCIAL GENERAL HOSPITAL	160
7 NOV 1996	THIKA DISTRICT HOSPITAL	120
8 NOV 1996	NYERI PGH	160

Print
Current Stock Balance
2,556
Exit

Figure 1: Batch History Screen showing issued quantities of a batch of Diflucan

Single Commodity BinCard

DIFLUCAN

Date	Details	Beg. Bal	Received	Issued	Adj. just	End Bal
6/09/1996	PFIZER LABS	0	3,745	0	0	3,745
28/10/1996	MISSION FOR	3,745	0	745	0	2,996
7/11/1996	EMBU PROVINC	2,996	0	160	0	2,836
7/11/1996	THIKA DISTRI	2,836	0	120	0	2,716
8/11/1996	NYERI PGH	2,716	0	160	0	2,556

Print
Exit

Figure 2: Single Commodity BinCard Screen showing all issues of one specific batch of Diflucan

Appendix V

LMIS ForeCast Module

The Kenya contraceptive ForeCast module of the LMIS uses historical distribution data from the Central Warehouse to generate national commodity projections. The Central level distribution data are validated using DRP district level and dispensed to user data. Survey data (Demographic and Health Surveys) and MOH/donor plans for programme expansion (e.g. Community Based Distribution Projects) are taken into account to determine the most realistic annual increment required to sustain the pipeline. This increment is easily adjusted as more precise information becomes available (e.g. a new survey produces a more recent fertility trend) allowing projections to be made on an ongoing basis.

This module alerts the FP programme managers, key stakeholders and policy makers when stockouts are imminent and calculates what is required to avert them, both in terms of quantities of commodities required and the cost of any expected shortfalls.

The Eritrea essential drugs ForeCast module projects national requirements for MOH Health Centres and Health Stations based on standardized kits.

- The ForeCast Module facilitates MOH/donor coordination and stabilizes the pipeline by anticipating shortages and stock-outs.

DIVISION OF FAMILY HEALTH
REPRODUCTIVE HEALTH LOGISTICS UNIT
L M I S
FORECAST - COMMODITY FORECASTING SYSTEM

DATE : 21 NOV 1996
TIME : 4.02PM

COMMODITY LOW DOSE PILLS

YEAR	DISTRIBUTION	% CHANGE IN DISTRIBUTION	YEAR END TARGET 12-MONTH BUFFER STOCK	DELIVERIES ON ORDER	TENTATIVE COMMITMENTS	AVAILABLE AT END OF YEAR	**SHORTFALL (+) SURPLUS (-)	***SHORTFALL COST (US \$)
1991	2,770,900		2,770,900			6,448,100		
1992	2,931,935		2,931,935			6,297,618		
1993	2,759,840		2,759,840			6,061,100		
1994	2,425,260		2,425,260			5,433,300		
1995	5,136,465		5,136,465			5,399,232		
² 1996	5,417,943		5,417,943	8,985,480		5,662,244	-101,289	
1997	6,284,814	16%	6,284,814		10,347,826	5,662,244	-3,377,430	
1998	7,290,384	16%	7,290,384		4,347,826	5,719,667	370,698	\$131,261
1999	8,456,845	16%	8,456,845		4,347,826	2,610,667	5,846,178	\$1,344,621
2000	9,809,940	16%	9,809,940		4,347,826	-Stockout-	12,661,307	\$2,912,119
TOTALS	54,284,326			8,985,480	23,391,304		22,274,404	\$4,388,001

* Estimated from current fertility trend (RDHS, 1993).
 ** Shortfall calculation assumes that all commitments made will be delivered
 *** Estimated Unit Price (CIF Nairobi) : US \$0.23
² Based on actual distribution Jan - Aug, 1996

DELIVERIES		
1996 SIDA	3,000,000	\$600,000
1996 SIDA	2,985,480	\$596,660
1996 SIDA	3,000,000	\$600,000

COMMITMENTS		
1998 UNFPA	4,347,826	\$1,000,000
1997 UNFPA	4,347,826	\$1,000,000
1997 SIDA	6,000,000	\$1,388,000

- The Eritrea ForeCast module projects national essential drug requirements for MOH Health Centres and Health Stations.

CENTRAL MEDICAL STORES
DENDEN, ASMARA
FORECAST - COMMODITY FORECASTING SYSTEM
GLOBAL COMMODITY PROJECTIONS

DATE : 24 NOV 1996
TIME : 5 04PM

PAGE 1

Number of Health Centres : 45
Number of Health Stations : 145
Buffer Stock (Months) : 6

COMMODITY	UNITS	HEALTH CENTRES	HEALTH STATIONS	BUFFER STOCK	TOTAL COST (TBD)
02101001 ACETYL SALICYLIC ACID 100MG	TABLET	2,160,000	0	0	TBD
02101006 ACETYL SALICYLIC ACID 300MG	TABLET	0	0	1,080,000	TBD
02101008 ACETYL SALICYLIC ACID 500MG	TABLET	0	0	0	TBD
06301008 AMOXICILLIN 250MG	CAPSULE	3,240,000	5,220,000	4,230,000	TBD
06301005 AMOXICILLIN 60ML	BOTTLE	100,000	174,000	141,000	TBD
00300101 CHLORPHENIRAMIN 4MG	TABLET	540,000	870,000	705,000	TBD
01202014 LIDOCAINE HCL 2% 50ML	VIAL	27,000	43,500	35,250	TBD
12020090 LIDOCAINE INJ 1% 50ML	VIAL	0	0	0	TBD
01202060 LIDOCAINE WITH ADER 1 8ML	AMPOULE	0	0	0	TBD
06001001 MEBENDAZOLE 100MG	TABLET	2,700,000	5,220,000	3,960,000	TBD
06003002 METRONIDAZOLE 250MG	TABLET	1,620,000	2,610,000	2,115,000	TBD
06002001 NICLOSAMIDE 500MG	TABLET	540,000	870,000	705,000	TBD
02102001 PARACETAMOL 100MG	TABLET	2,700,000	8,700,000	5,700,000	TBD
02101002 PARACETAMOL 500MG	TABLET	5,400,000	8,700,000	7,050,000	TBD
11202004 PARACETAMOL ELIXIR 60ML	BOTTLE	54,000	0	27,000	TBD
05002004 PHENOBARBITONE 100MG	TABLET	1,080,000	0	540,000	TBD

TOTAL

TBD

Appendix VI

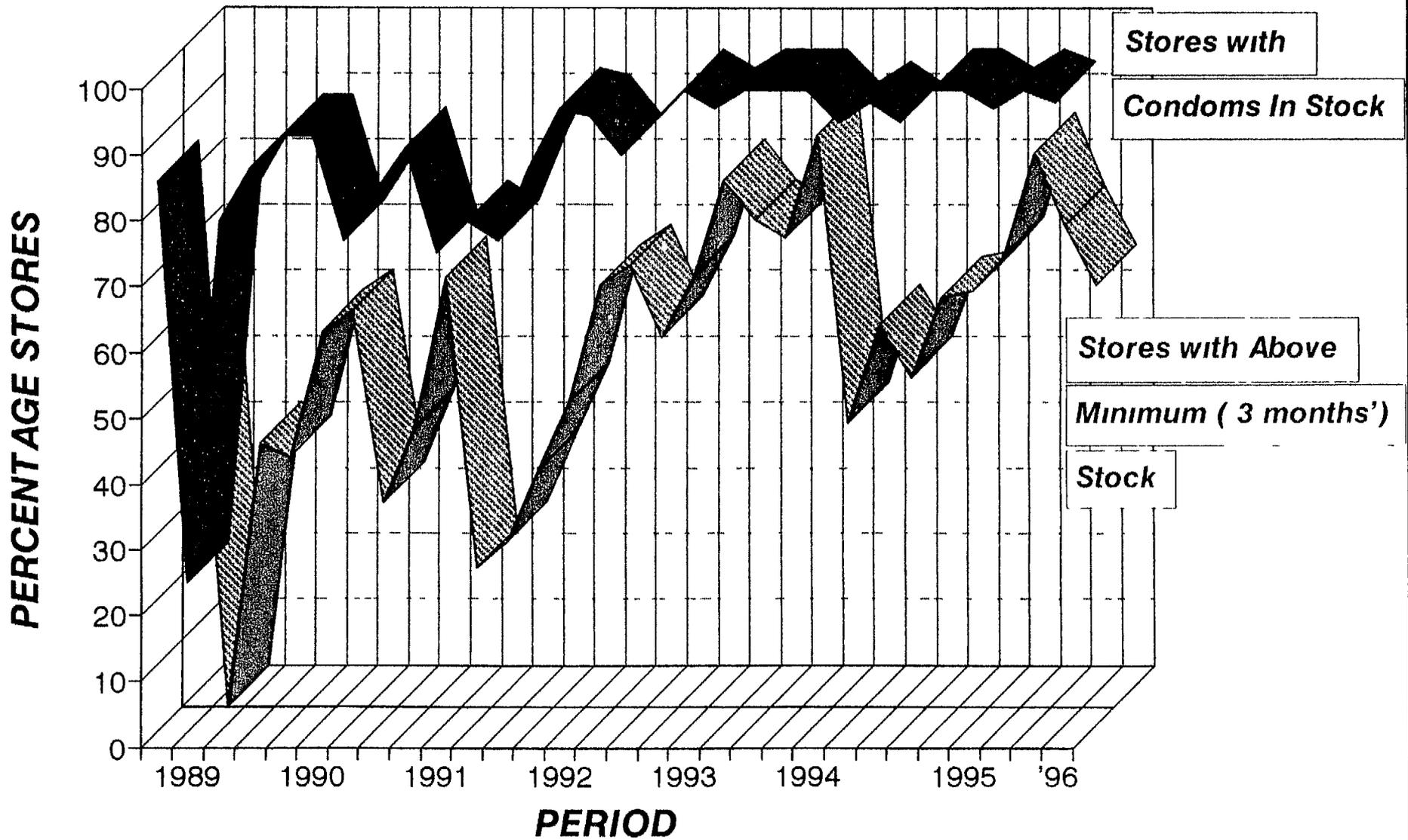
LMIS PreSent Module

The PreSent Module of the LMIS is used to graphically display the FP Programme performance at central, district and SDP levels. It uses the available LMIS data to generate simple but effective graphs showing the offtake and availability of commodities at each of these levels, for use by programme managers, donors and policy makers.

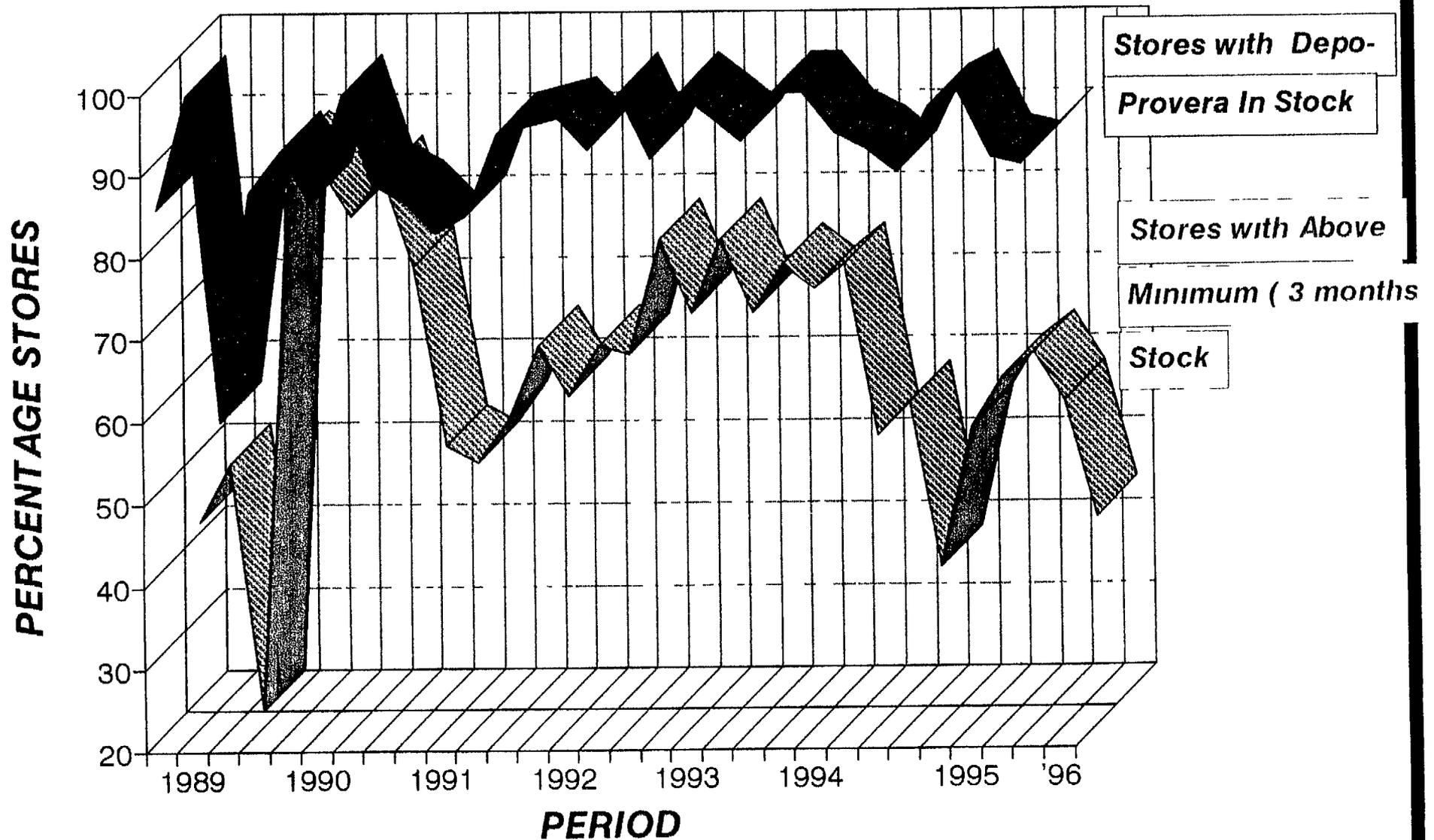
The LMIS was initiated in 1989. In early 1992, the Division of Family Health designated a reproductive health section at the Central Warehouse and implemented an innovative distribution and monitoring system.

As the following charts demonstrate, the impact of these latter interventions is dramatic in terms of availability and offtake of commodities at both district and service delivery levels.

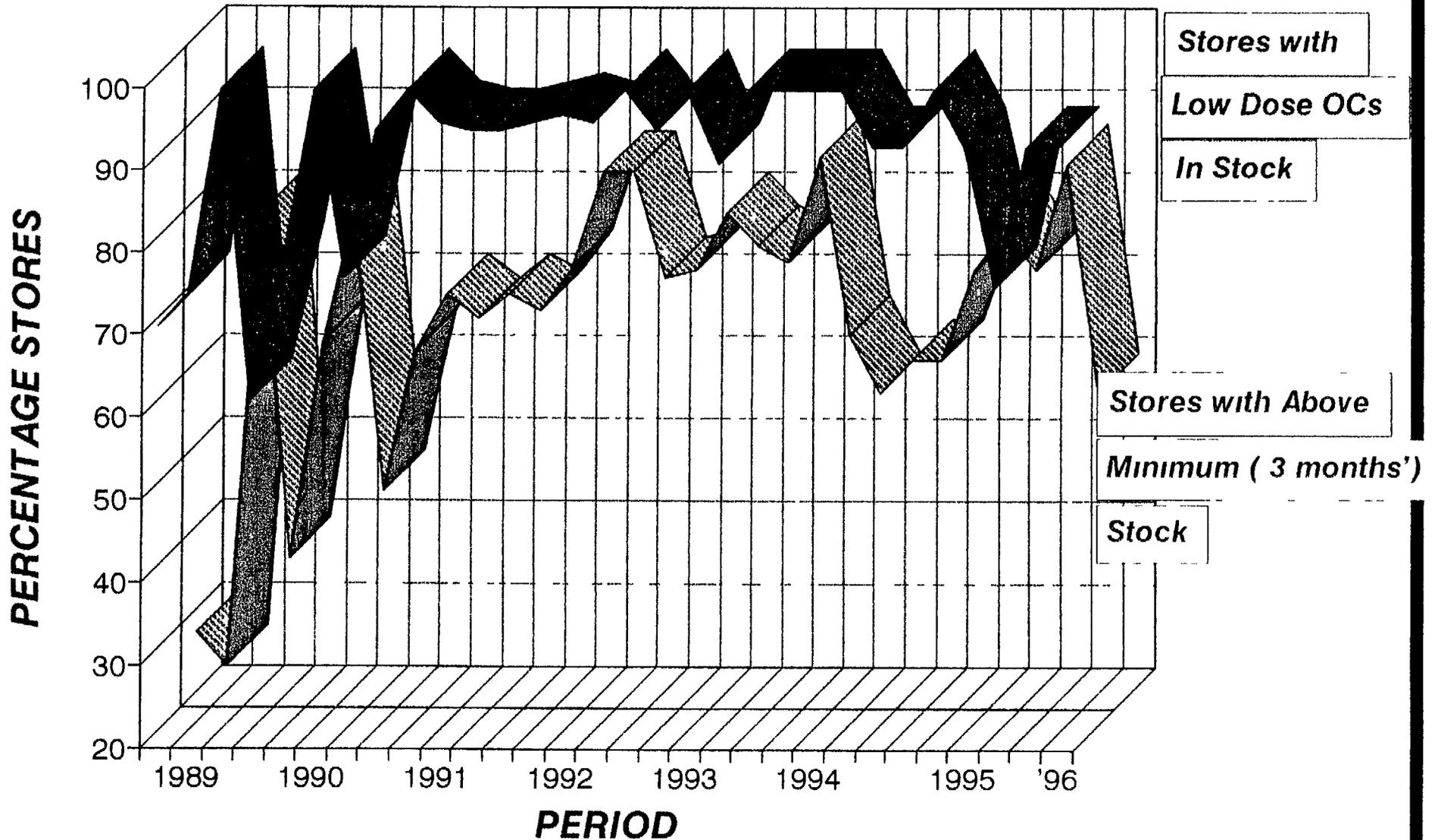
CONDOM AVAILABILITY AT DISTRICT STORES 1989 - 1996



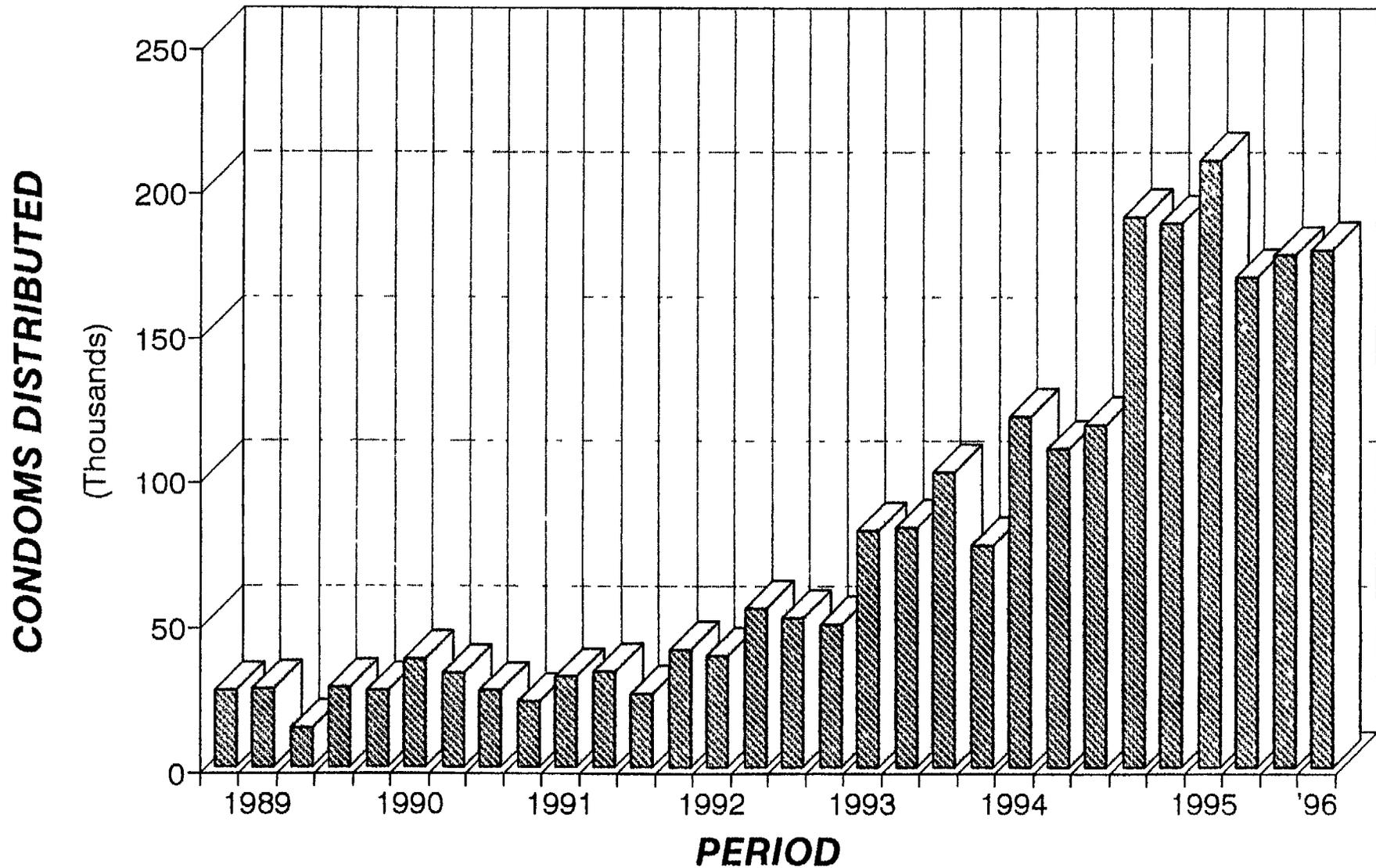
DEPO-PROVERA AVAILABILITY AT DISTRICT STORES 1989 - 1996



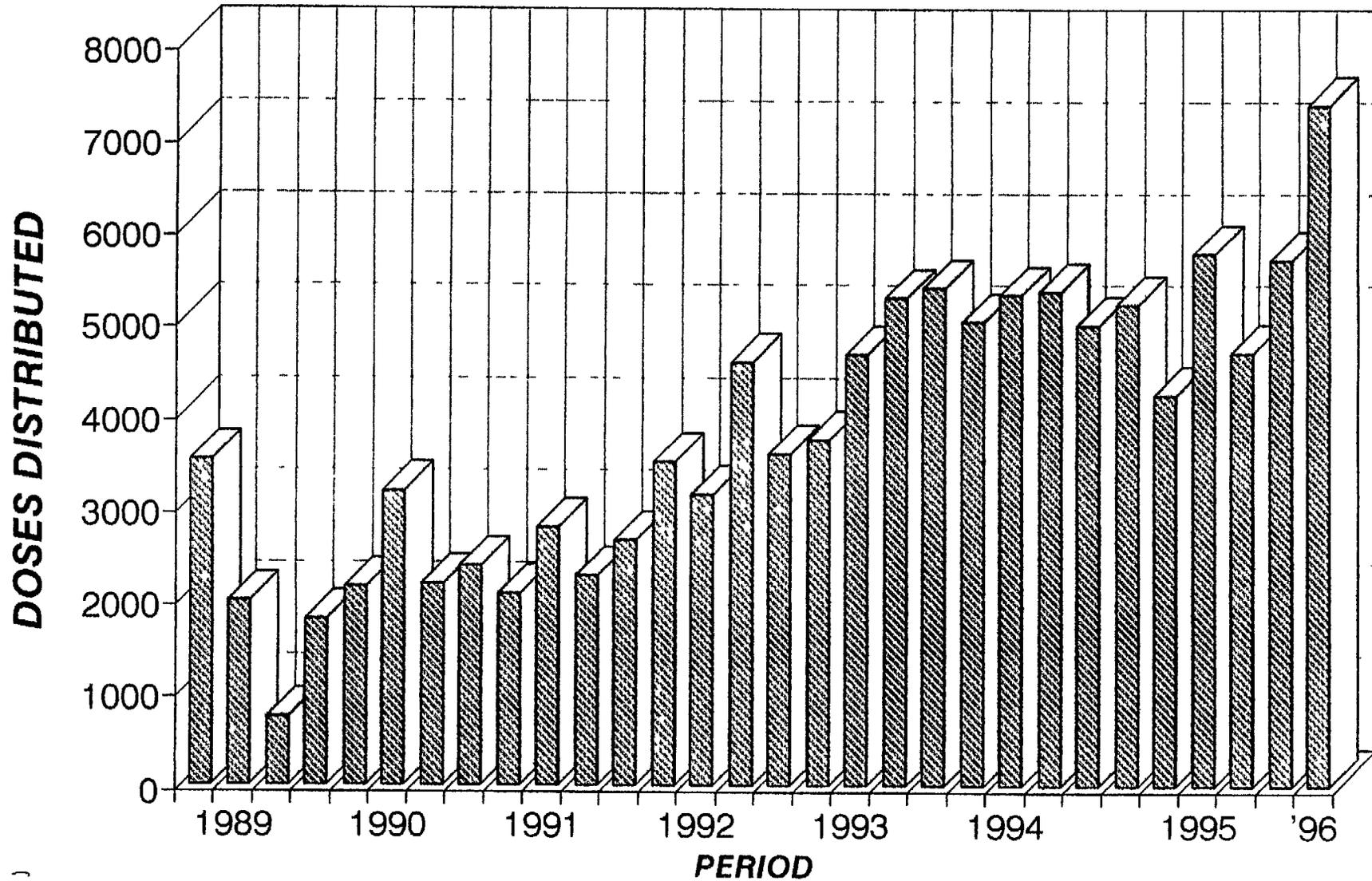
LOW DOSE OCs AVAILABILITY AT DISTRICT STORES 1989 - 1996



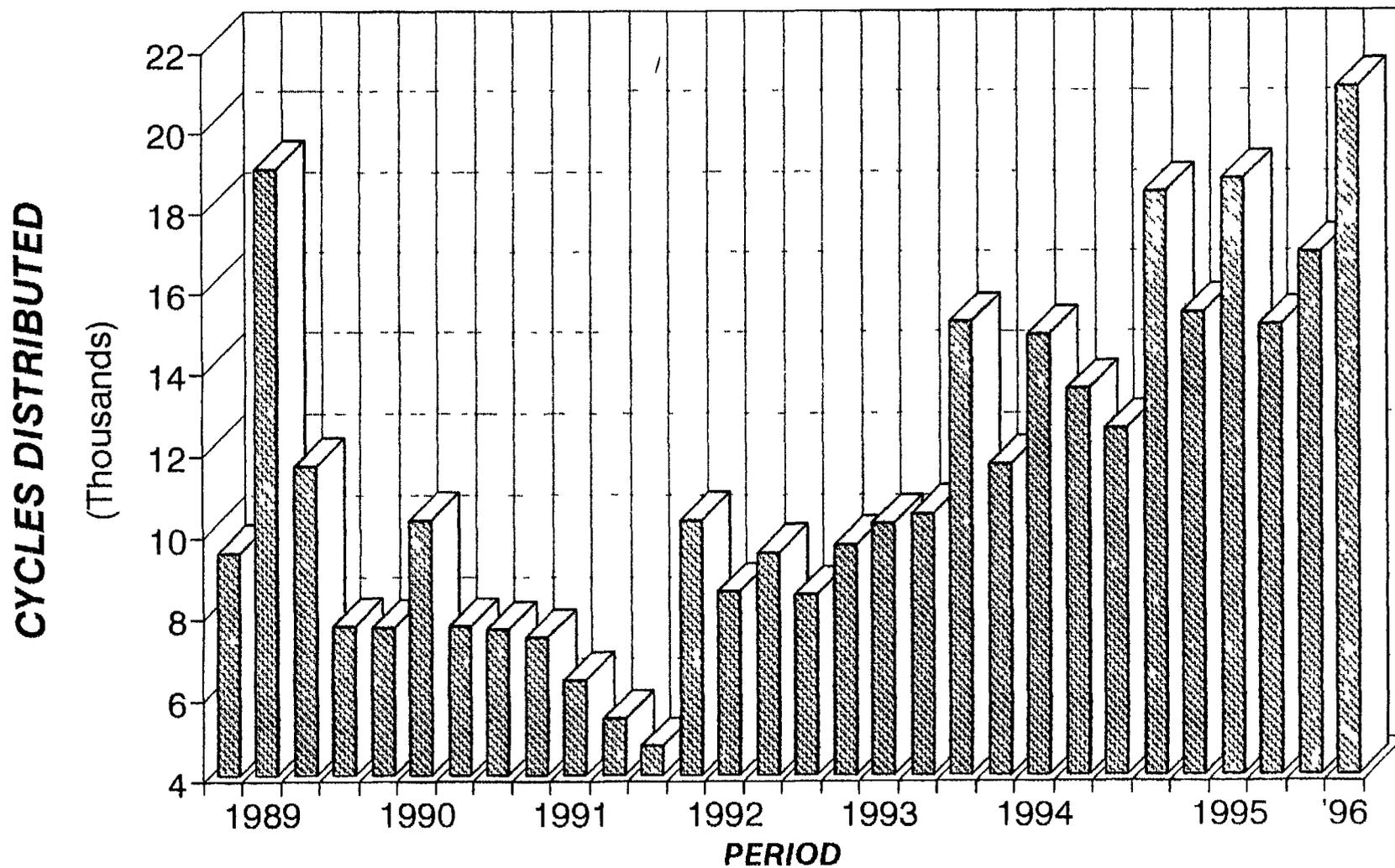
UNITS OF CONDOMS DISTRIBUTED BY AN AVERAGE DISTRICT STORE 1989 - 1996



DOSES OF DEPO-PROVERA DISTRIBUTED BY AN AVERAGE DISTRICT STORE 1989 - 1996

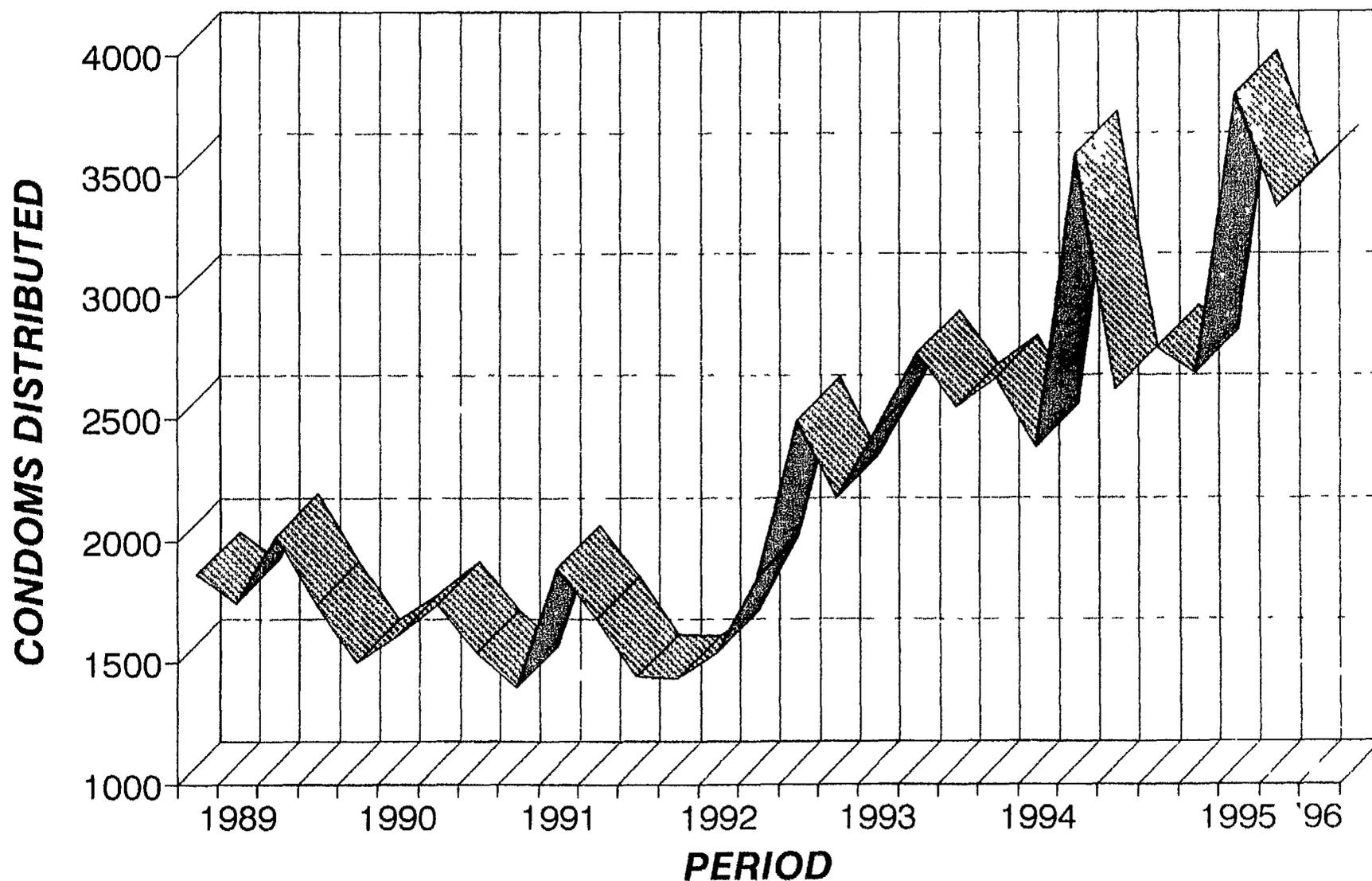


LOW DOSE OCs DISTRIBUTED BY AN AVERAGE DISTRICT STORE 1989 - 1996

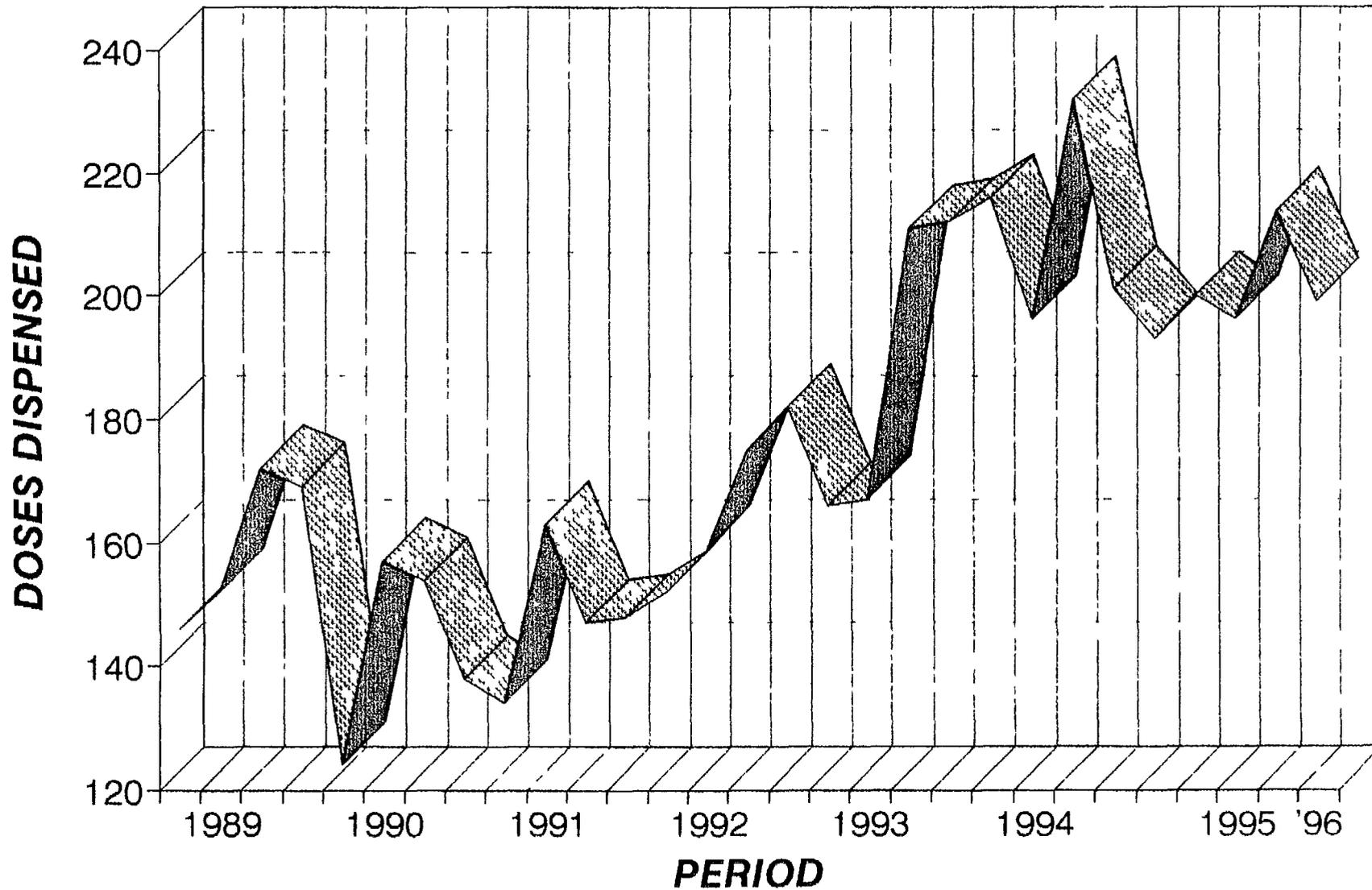


Logistics Management Unit, DFH, Nov, 1996

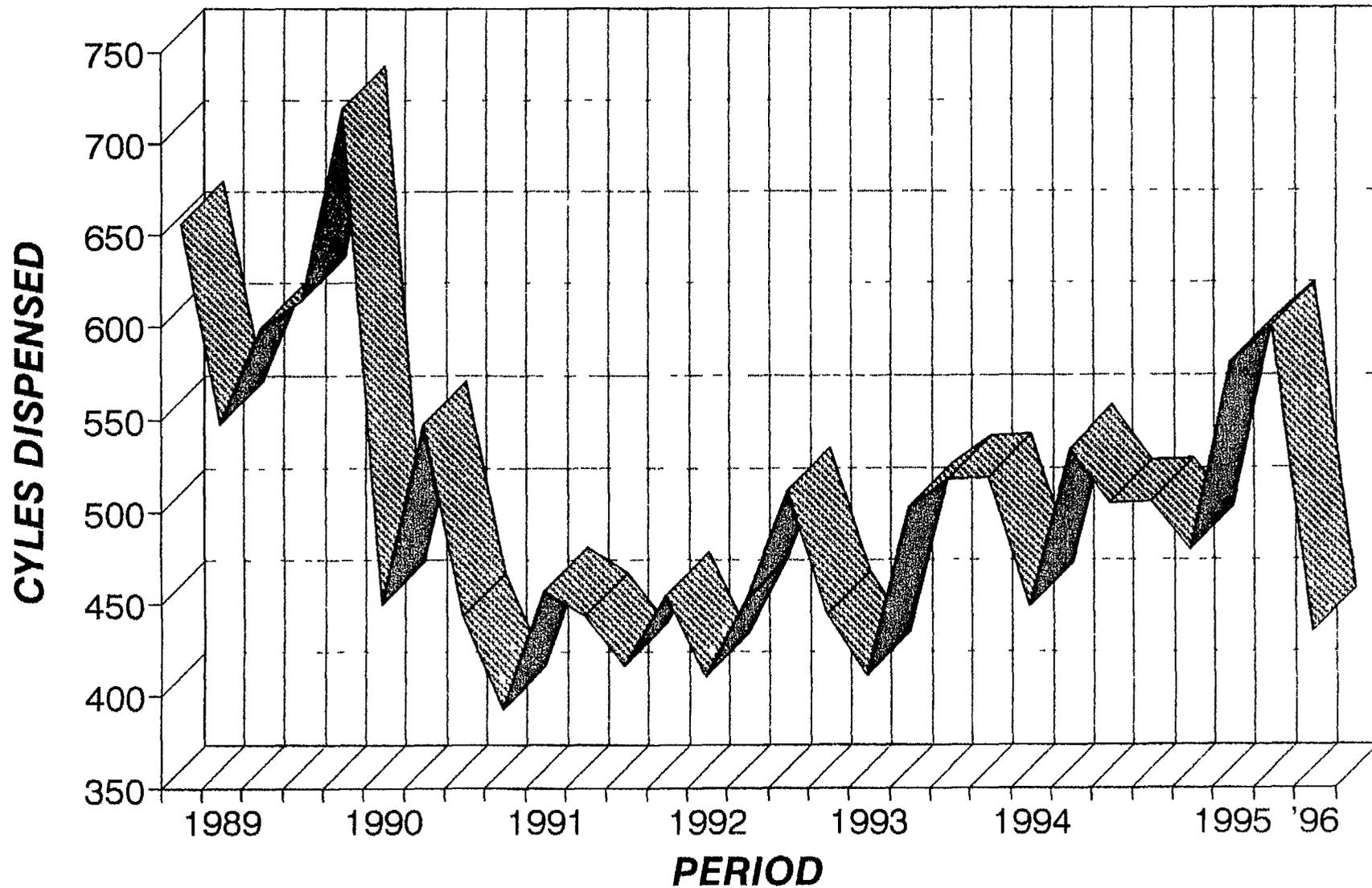
UNITS OF CONDOMS DISTRIBUTED AT AN AVERAGE SDP 1989 - 1996



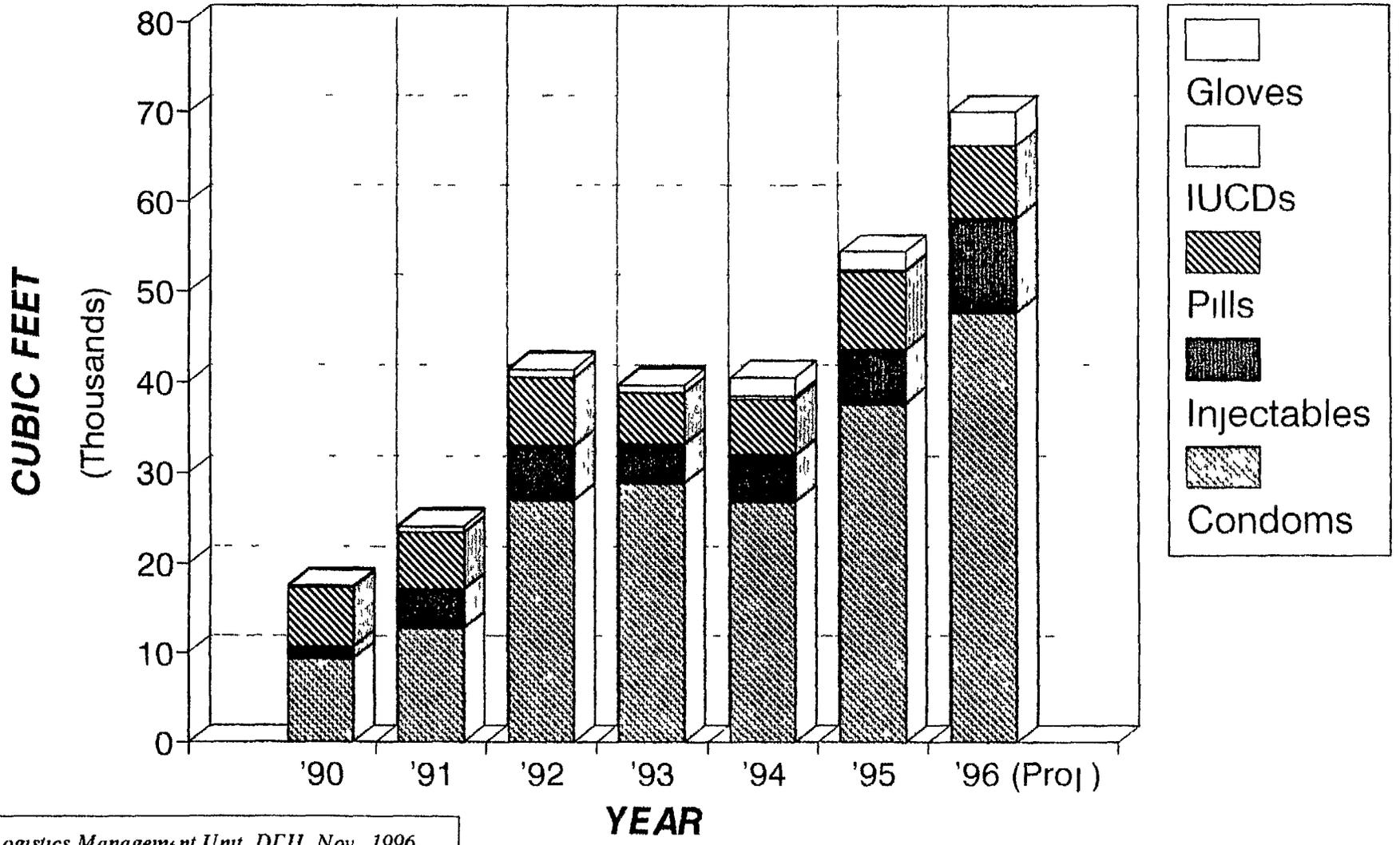
DOSES OF DEPO-PROVERA DISPENSED AT AN AVERAGE SDP 1989 - 1996



LOW DOSE OCs DISPENSED AT AN AVERAGE SDP 1989 - 1996



VOLUMES OF COMMODITIES DISTRIBUTED BY FP WAREHOUSE 1990 - 1996



Logistics Management Unit, DFH, Nov, 1996

AVERAGE STD CLIENTS SEEN AT GOK HIV/STD PROJECT SITES

