# DNA SEQUENCING RESEARCH GROUP

# GENERAL SURVEY 2003.

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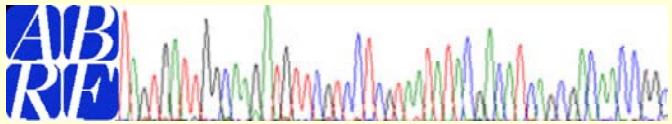



DNA Sequencing Research Group

**ABSTRACT**

**DNA Sequencing Core Facilities serve as centralized resources, providing expertise in the area of DNA analysis in both academic and commercial institutions. As new instrumentation and methods are developed the make up of Sequencing Core facilities is directly impacted and subject to change. The goal of the 2003 DSRG survey is to identify the changes in the composition and configuration of DNA sequencing facilities, including the laboratory size, staffing, funding, instrumentation, chemistries and services provided by the facility. This study will help identify new trends in the DNA Sequencing Facilities and present a more accurate picture of the current, typical DNA Core Sequencing Facility.**

## INTRODUCTION

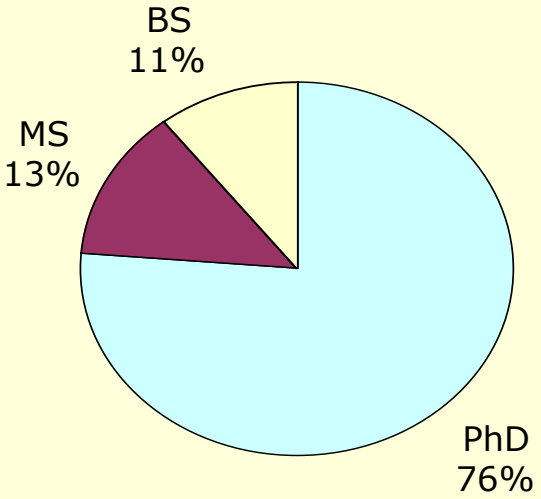
In order to identify the configuration and composition of a current DNA Core Sequencing Facility, and to see what current technology advancements have been made in these facilities; the DSRG prepared a detailed list of questions which looked to provide pertinent information regarding all services. The DSRG launched the survey in December of 2002, and requested all submissions to be in by January 15, 2003. The survey announcements were posted to several web-servers, including the ABRF list server. The survey consisted of 58 questions and all surveys were tracked by a four digit number and so were anonymous. In all forty five facilities requested surveys and thirty completed surveys were received. The results from the survey were collected and analyzed, and the results presented here.

## RESULTS

All the data was collected and analyzed systematically to try and identify trends between facilities.
The analysis provides a good indication of how facilities are operating, but was limited by response size. The size and age of facilities that submitted samples was variable, showing there were small core facilities and large, high throughput facilities.

Highlights of the study are presented below.

### Directors' Education




Facility Directors' experience ranged 6 months to 18 years. The mean was 6 years.

The salary range was $35,600-$100,000, with the average being $58,000.

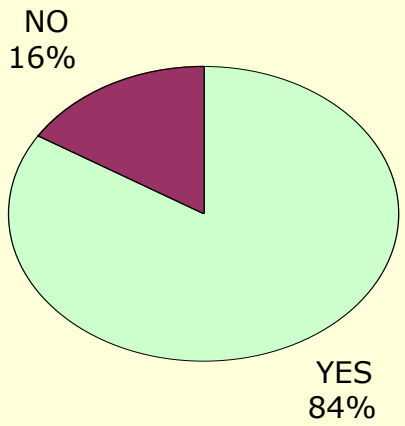
**Technical Staff**

Most Core Facilities personnel stayed with the core for one to seven years. The average retention time was three years.
The range of salary probably varied by geographical location and skill level. Salary range was $18,000 to $46,000. The mean was $32,600.

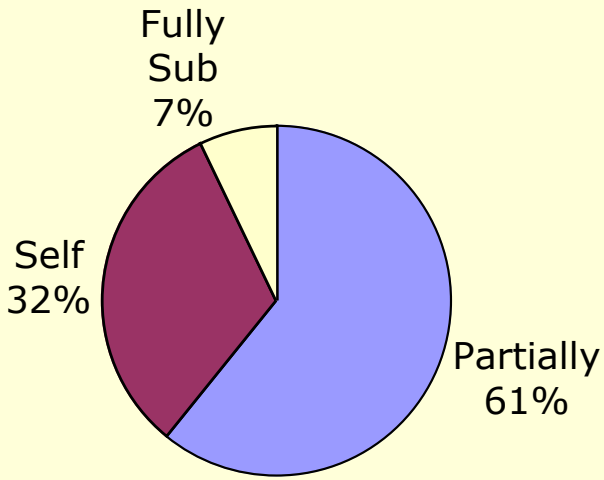
Funds for technician salaries included:

Institutional Funds
Center Grants
Department Funds
Individual Research Grants
Philanthropy
User Fees

**Is the lab overseen by another faculty member or advisory committee?**



**Is the lab fully self-supported or partially subsidized or fully subsidized?**



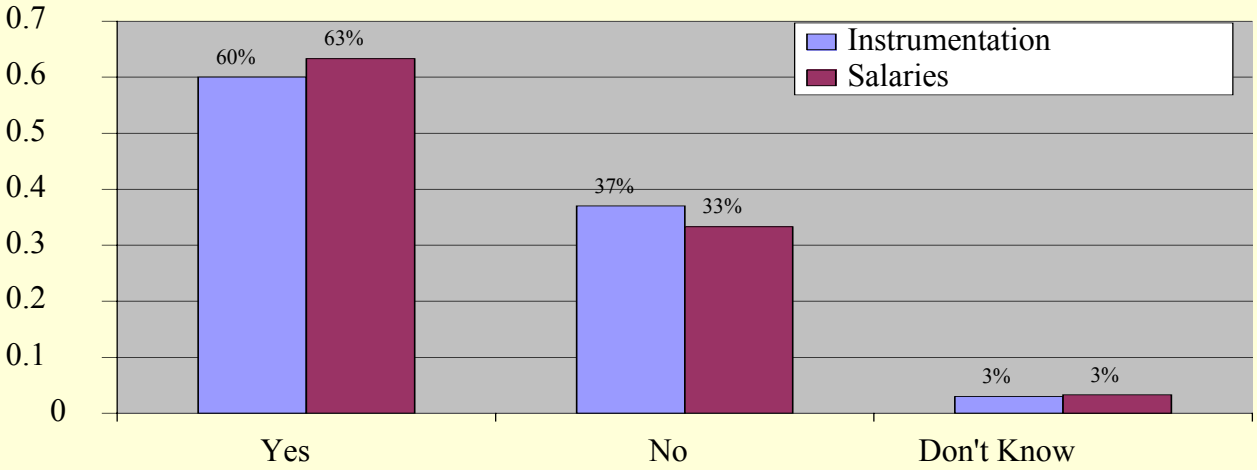

Many of the facilities are subsidized by grants, institutional funding or philanthropic donations

**What costs are covered by cost recovery mechanism?**

Facilities used charge backs to fund the following:

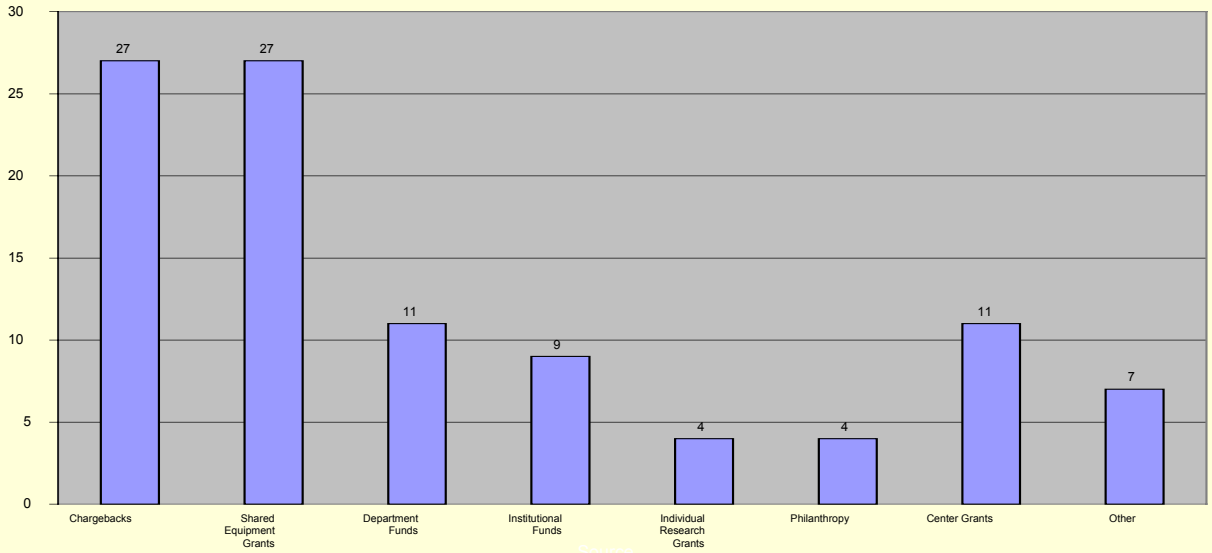
100%:Reagent Cost
90%:Service Contracts
72%:Technician Salaries
69%:Lab Consumables
66%: Upgrades
52%: Director Salaries
48%: New Instruments
38%:Full Operating Cost of Facility

## Are Institutional Finances Adequate?



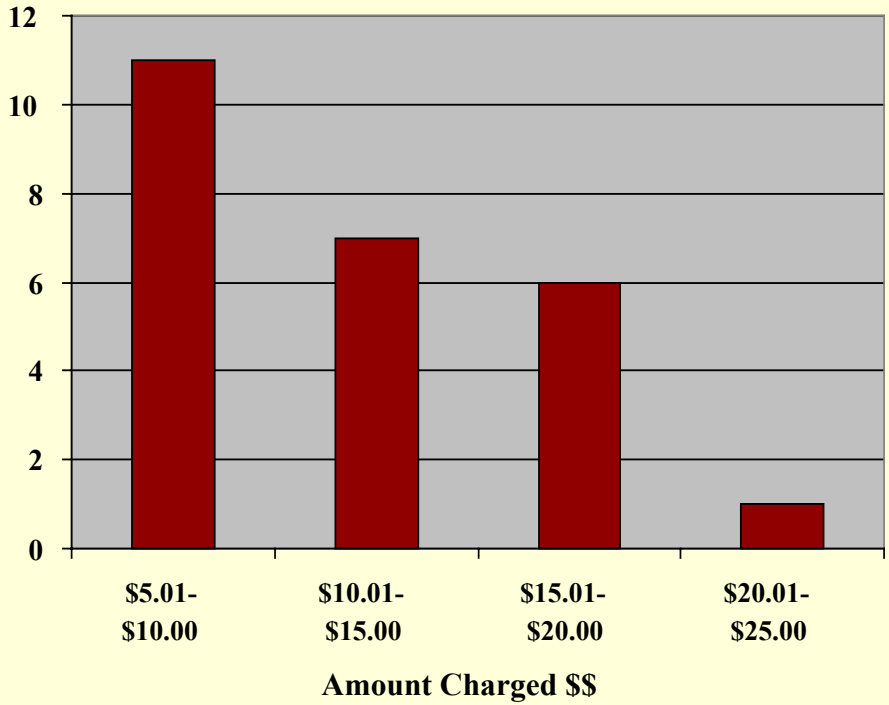

Approximately 60% who responded to survey felt they had adequate funding for instrumentation and salaries.

## Source of Funding for Instrumentation




The top two sources of funds for instrumentation were charge backs and shared equipment grants.

## Charges for DNA Sequencing

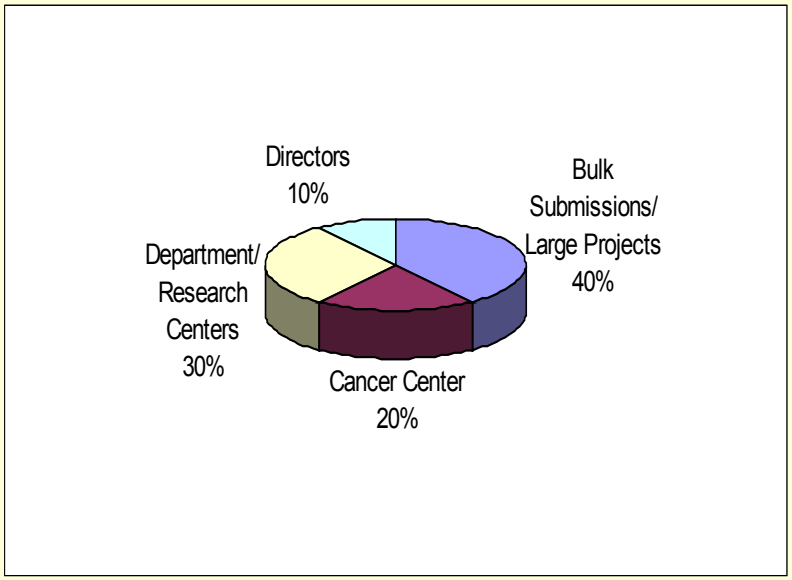



- Range $6-$23
- Average cost for a sequencing reaction $12-$13

Cost of Sequencing varied significantly,as some facility costs were subsidized while other facilities were completely self supporting.

87% of Sequencing customers responded favorably to the charges.

## Discounted Rates




34% of Labs offer discounted pricing
The discounts ranged from 15%-90%

Mean discount is 38%
Median discount is 22.5%

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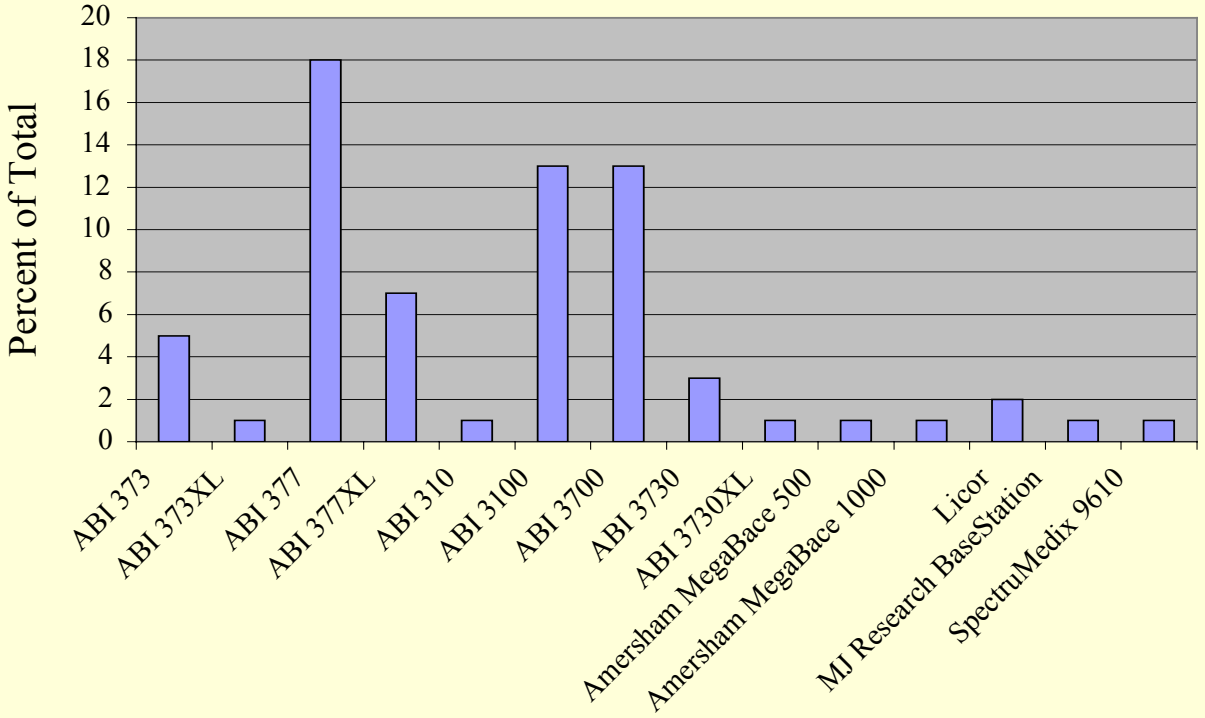
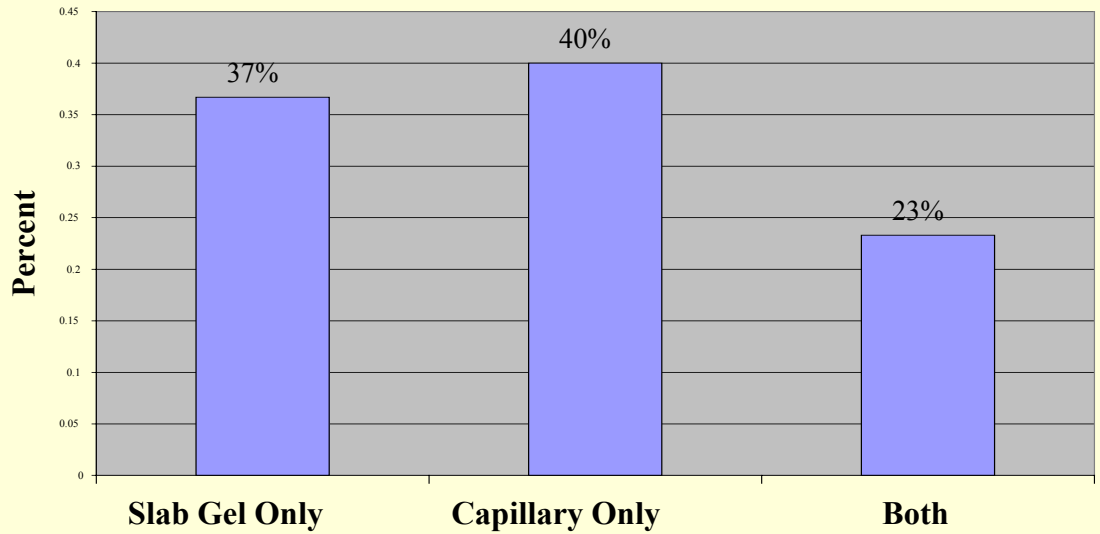
## Instrumentation




Most core facilities have two instruments. This chart shows that a wide variety of instruments are being used to perform DNA sequencing.

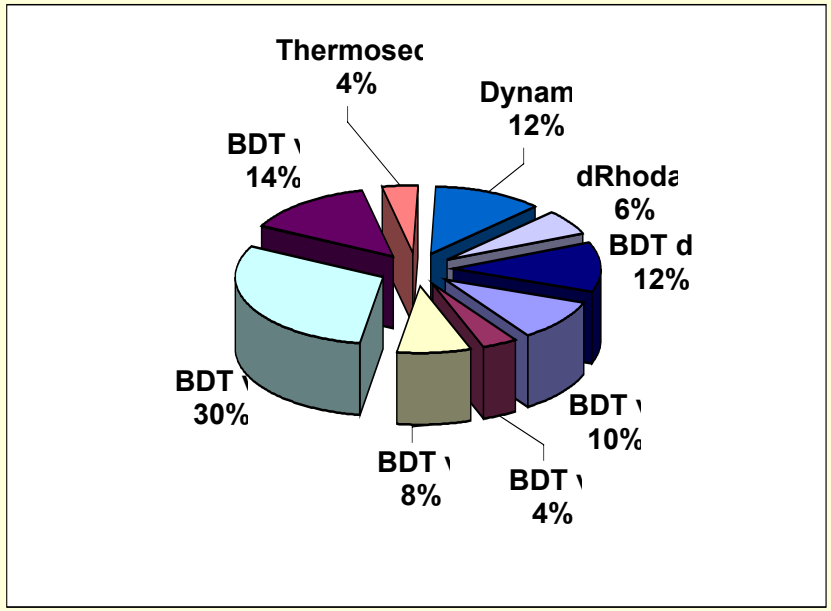
## Slab Gel v Capillary




Approximately 40% of facilities have either slab gels or capillary instruments.

Only 23% have both.

## Chemistry

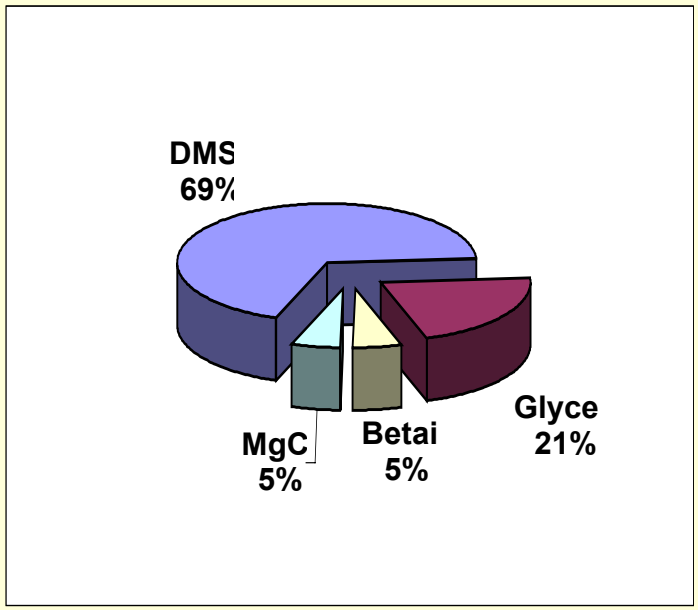



Most facilities now use solely dye terminator chemistry.

30% use Big dye v3.0

Nine others chemistries are also being used.

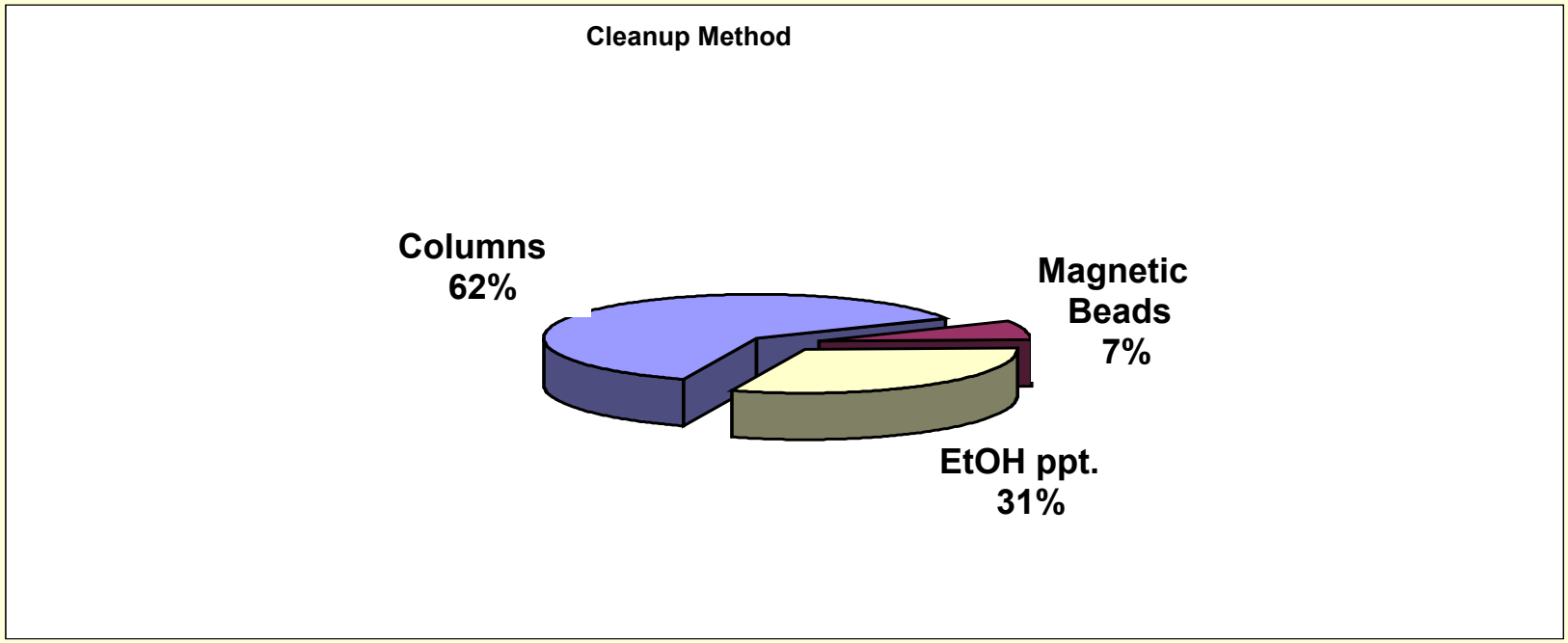
## DNA Sequencing Additives




64% of the facilities said they used some kind of additive.

The breakdown of additives used is shown in the pie chart above.

## Dye Terminator Removal




Chromatography columns appear to be the  most popular method of dye terminator removal.

**Consultation Time**

•Range 0-12.5 hours per week

•Median: 5hours/week

•1 lab reported > 30 hours per week

**Summary**

Some cores have been established since 1984, while others have been operating for only a year.
The annual sample volume range has increased:

2002: up to 250,000
1999: up to 80,000

There is an increase in the number of P.I.s supported by a facility:

2002: Range 10 - 400
1999: Range 3 - 225

Average cost of sequencing per sample has dropped from $20 in 1999 to $12-$13 in 2003.
A typical core laboratory director has 6 years of experience and a PhD.
Sequencing is being performed on capillary instruments and slab gels. Dye terminator is the most prevalent chemistry used and there is a preference for column based dye terminator removal.

**Acknowledgements**

•Thanks to all the laboratories who participated in the study.