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FROM POLICY TO IMPLEMENTATION:
A NEEDS-BASED BUDGET PROGRAM FOR IMPLEMENTING THE CERVICAL CANCER SCREENING POLICY IN SOUTH AFRICA

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A Dissertation submitted to the Faculty of Health Sciences, School of Public Health, University of the Witwatersrand, to fulfil the requirement to acquire a degree of Master of Science in Medicine

Johannesburg
30 September 2014

Candidate's Declaration

I, Jamela Ellen Robertson declare that this dissertation constitutes my own work. Assistance was only solicited from program development experts to develop a computer-based budget program, which was required to complete this work. The budget program was therefore developed in 2010 by IT student consultants from the University of KwaZulu Natal: Kgosi Motlhabe and Bongani Fankomo. This dissertation is for submission to the University of the Witwatersrand (Wits) in Johannesburg, for a degree of Master of Science in Medicine. Prior to this submission, the dissertation had not been submitted to Wits or any other University for any degree or examination.

Signature: 

Date: _30/09/2014____ (Day, Month, Year)

DEDICATION

This dissertation is dedicated to the following individuals who encouraged me relentlessly to complete my studies: my youngest sister Lindiwe Helm, my husband Peter Robertson, my daughter Nxalati Robertson and my son Tumelo Robertson, my friends and mentors Ms. Khosi Xaba, Dr. Nozizwe Conco and Prof. Sharon Fonn and my supervisor Dr. Mary Kawonga.

PUBLICATIONS AND PRESENTATIONS ARISING FROM THE DISSERTATION

This study has not yet been published, however, it was presented at the Public Health Association of South Africa (PHASA) Conference, in Cape Town in March 2003.

ABSTRACT

Background

In South Africa cervical cancer has an age standardised incidence rate of 23 per 100 000 in women below the age of 35 and 76 per 100 000 amongst women over 35. The National Department of Health (NDoH) introduced the national cervical cancer screening policy guidelines in 2000, with the aim to screen 70% of women aged between 30 and 59 over a 10-year period. Health managers at provincial and district level were expected to implement this policy at their respective levels. Research has shown that implementing national health policies is often challenging due to management weaknesses, including the lack of guidelines or tools on how managers should plan and allocate budget for services.

Aim

The aim of this study is to develop and test an approach to planning and budgeting that would assist health managers to follow a rational process to plan and estimate budget requirements for implementing the cervical cancer screening policy at sub-national level.

Method

This study was conducted in three districts in South Africa. The study was conducted in four phases. A situational analysis of budgeting practices was conducted in the first phase, to describe existing planning and budget allocation practices for cervical cancer screening programmes in the study sites and identify any existing gaps. The process requirements for implementing a cervical cancer screening programme were then identified prospectively in the second phase. Informed by the situation analysis and the process requirements, a computer-based planning and budget estimation program was

developed in the third phase and tested through interviews with key informants in the fourth phase of the study.

Results

The situational analysis revealed a lack of involvement of interviewed programme managers at all the levels, in planning and budgeting for implementing cervical cancer screening programmes. The participants' descriptions of budget allocation processes indicated that there was no defined process for allocating budget to services and the allocations were not specifically informed by assessed programme needs in their respective areas of jurisdiction.

Process requirements for cervical screening were identified and documented for the following aspects of a cervical screening programme: calculating target population to inform planning for service provision, staff and equipment audits, equipment and supplies, material required for systems functioning (e.g., tools, forms, guidelines), transport and communication systems, community information education and communication (IEC) strategies, staff training, laboratory services and services for the treatment of High grade Squamous Intraepithelial Lesions (HSIL). A computer-based planning and budget estimation program, which could enable managers to define and quantify resources needed to implement a cervical screening programme was developed, informed by the documented process requirements.

The testing of the computerised planning and budget estimation program indicated that the program could improve planning and help managers to estimate budget requirements for implementing cervical screening. Respondents indicated that the program was relatively easy to use and also felt that it could potentially be useful for programme

planning as follows: a) it could serve as a tool for programme needs assessment, b) it could facilitate rational budget estimations, c) managers could use it as a bottom-up tool to motivate for resources, and d) managers could use it to refute inadequate budget allocations where possible.

Conclusion

The findings of the situational analysis support existing literature in revealing very little if any change in relation to inherent challenges in implementing cervical cancer screening services in South Africa. The findings of this study are relevant for public health programme planning and budgeting beyond cervical screening. Since managers at sub-national level are delegated to implement policy, it is imperative that they are provided with tools that may guide them to plan and budget for services on the basis of needs in their areas of jurisdiction. This study provides one such tool.

ACKNOWLEDGEMENTS

This project was conceptualised as part of the Cervical Health Implementation Project (CHIP). The CHIP was conducted through the collaboration of the Women's Health Project at the University of the Witwatersrand, the Women's Health Research Unit at the University of Cape Town, the National Department of Health and Engenderhealth. This project was mainly self-funded by the candidate. However, funding of R13, 000.00 from the University Research Committee at the University of the Witwatersrand is acknowledged. The funding was granted while the candidate was an employee of the University and a member of the CHIP team. Dr. Mary Kawonga's supervision and Prof. Sharon Fonn's input were instrumental in the conceptualisation and completion of this project. The Public Health Association of South Africa (PHASA) is also acknowledged for providing an opportunity to present findings of the situational analysis at its conference in 2003.

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GLOSSARY OF TERMS

Term	Description
Asymptomatic	Showing no obvious clinical symptoms.
Budget planning and estimation program	As used in this study, budget planning and estimation program refers to the computerised budget planning and estimation tool, provided here on CD. 'Program' and Budget program' are also used to refer to the tool.
Budget program	Budget planning and estimation program
Cervix	The neck of the womb, which connects the womb to the birth canal.
Colposcopy	A magnifying and photographic medical instrument used to examine the cervix.
Crude coverage	Coverage of a proportion of women eligible for a Pap smear, who report that they have had a once-off pelvic examination, regardless of when this happened.
Cytology	The study of cells.
Effective coverage	Coverage of a proportion of women eligible for a Pap smear, who report that they have had a pelvic examination and Pap smear in the past three years.
Facility	Clinic
Glandular cells	One of the main cells covering the cervix on which cervical cancer is known to develop.
Human Papilloma Virus	A usually sexually transmitted virus that is common in most cases of cervical cancer.

Pap smear	A test performed on the cervix to detect abnormal cells that may cause cervical cancer.
Process requirements	As used in this project, process requirements are all resources and support systems required for consideration, to facilitate effective programme planning and rational budget estimation. Process requirements can be identified through a programme needs-analysis.
Program	Budget planning and estimation program
Programme	This is used to reflect health service programmes such as the cervical cancer screening programme.
Squamous cells	One of the main cells covering the cervix on which cervical cancer is known to develop.
Transformation zone	The point at which the squamous and glandular cells meet in the cervix. Cervical cancer is known to begin in the transformation zone.

CHAPTER 1: INTRODUCTION

1.1. Background

According to Globacan[1], cervical cancer is the third most common cancer in women globally, comprising an estimated 530 000 new cases in 2008, representing age-standardised incidence and mortality rates of 15.2 and 7.8 per 100 000 women, respectively. About 85% of the cases occur in developing countries, where cervical cancer accounts for 13% of all cancers in women. A noticeable difference between the developed and developing countries is that in the developed countries, cervical cancer incidence and mortality rates have been reduced through effective cervical cancer screening programmes, while such programmes are rudimentary or non-existent in many developing countries, due to the lack of resources and in some situations also the lack of health system capacity to implement screening programmes[2].

The World Health Organisation (WHO)[3] statistics show that in South Africa some 16.84 million women aged 15 years or older are at risk of developing cervical cancer. It is currently estimated that 5743 women are diagnosed with cervical cancer every year and 3027 die from the disease. The WHO also states that cervical cancer ranks as the second most frequent cancer amongst South African women, particularly those aged between 15 and 44 years of age. Differences exist in the lifetime risk, with the risk of 1 in 34 for Black women, 1 in 50 for Asian and Coloured women and 1 in 93 for White women, reflecting racial and socio-economic inequities in access to services for the prevention of cervical cancer[4].

South Africa's cervical cancer screening policy has taken a public health approach, targeting the age group that is most at risk for cervical cancer screening in low resource settings[5]. The National Department of Health (NDoH) demonstrated its commitment to

reducing the burden of disease posed by cervical cancer, by developing a national programme for cervical cancer screening as a component of the National Cancer Control Programme (NCCP)[6]. In the year 2000, the NDoH published the national guidelines for a cervical cancer screening programme, to provide a policy framework for cervical cancer control in South Africa[7]. Included in the policy guidelines is that Pap smears must be performed on all asymptomatic women aged 30 and above at ten-year intervals between each smear. The goal was to achieve a screening coverage of 70% of eligible women within 10 years of formulating the policy guidelines. In its 5 Year Strategic Plan for 2000 - 2004, the NDoH reinforced this commitment by giving high priority to the reduction of mortality and morbidity due to cervical cancer[8].

The goal of achieving 70% screening coverage of women over 30 within 10 years appeared feasible in South Africa, with the available facilities and human resources at the time the cervical screening policy guideline was formulated. Fonn[9] estimated that to achieve a screening coverage of 70% of eligible women, approximately 5.5 million new Pap smears would need to be performed in 10 years, which translated to 550,000 smears per year. Based on existing data on prevalence of pre-cancerous lesions, about 23,600 women would require referral for further diagnosis and treatment. Fonn further estimated that there were about 99,960 professional nurses in the country, which meant that to achieve a target of 550,000 Pap smears per year, each professional nurse would need to perform about 6 Pap smears per year, or 1 Pap smear every two months. These estimates demonstrated that the policy goal of 70% coverage in 10 years was highly feasible from a human resource numbers perspective.

Translating the cervical screening policy into practice has however been fraught with challenges. In 2008 the Cancer Association of South Africa (CANSA) made a position

statement[10], which summarises the key challenges: *"...very few women (as few as 20%) have accessed cervical cancer screening services in South Africa, due to screening opportunities not being available in health services because of lack of equipment, limited staff training, staff reluctance to provide Pap smears, lack of laboratory services and long turn-around time of specimen results between laboratories and clinics. There is also a lack of education and awareness about cervical cancer."*

Previous research suggests however that limited managerial capacity to plan and allocate the resources needed to implement the screening policy at the district level may contribute to these challenges[11]. In South Africa's decentralised health system, responsibility for policy implementation and service delivery is delegated to the district level[12]. This would ensure that all health services are provided to populations in smaller administrative units (health districts) to meet local needs within national norms and policies[12]. Another purpose for the introduction of the district health system (DHS) is to facilitate district-based health service planning and decision-making about resource allocation[13]. Therefore, districts are envisaged to serve as major loci for policy implementation and district health plans and budgets as tools to support policy implementation[13].

1.2. Problem statement

For optimal district-level implementation of health programmes, including the cervical cancer screening programme, district managers need to be able to identify their local health needs, to have some influence over how to plan and allocate resources according to local needs and monitor service delivery and expenditure from the funding allocated to them. As McCoy et al state: *"…It is only when managers have a clear sense of how their resources are being allocated and used, that they will be able to properly budget and plan*

for the future. The proactive planning, management and control of recurrent expenditure can facilitate the allocation of resources on the basis of relative need"[14].

Klugman et al[15] however argue that in South Africa, resource allocation and budget decision-making are highly centralised at provincial level, with districts having little or no input on how resources should be allocated to health services and programmes in their jurisdictions. Problem-solving, the authors maintain, tends to take a top-down approach and the notions of needs-based resource allocation and districts controlling their own budgets seem to exist only in theory and locally identified needs are seldom considered during planning and budget allocation processes.

Furthermore, it is often not clear how district managers should plan, budget and implement health services and programmes and it is seldom considered whether district managers have sufficient skills and management capacity to implement policies at district level[15]. As Barron[16] reports, there is often an inadequate understanding of budget decision-making processes and limited linkage of planning and budgeting to needs at district level. Baron et al[16] argue that in fact, non-availability of finances is not necessarily the main weakness in effective delivery of programmes. Rather, it is the lack of financial planning and management skills of health service managers that is a problem, partly because health managers are not involved in budget planning processes and do not manage the finances of the services they are expected to deliver.

If district-based planning and resource allocation for services and programmes is to happen as envisaged, then health managers at district level need to be able to identify the activities (processes) involved in running a programme as well as the kinds and quantities of resources needed to implement the programme at district level, so that they

can budget accordingly. Tools to support district level planning, budgeting and resource allocation for health programmes are however lacking. This study contributes to addressing this gap by developing and testing a planning and budget estimation program that aims to guide managers (particularly those at district level) to identify and quantify resource requirements based on needs and to plan and budget for services. The study used the cervical cancer programme as an example for implementing a programme.

1.3. Study Justification

South Africa is globally well-known for its progressive policy and legislative frameworks that were put in place following the onset of democracy in 1994. However, as Nair[17] argues, translating policies into reality has often been a general challenge in South Africa. Nair[17] maintains that implementing policies and reaching the desired policy goals continues to be hindered by various challenges, including the lack of district level planning, budgeting and resource allocation for health programmes. This suggests that there is a need for a tool that can enable health managers to operationalise policies such as the cervical cancer screening policy, thereby breaking the impasse between policy and action in the delivery of cervical cancer screening services.

This research is important for South Africa's context because for decentralised management of service delivery to occur as stated in health policies, service delivery managers need to be involved in both the service management and financial management cycles[18]. As Palmer[19] argues, a key tool for managing districts effectively is the proficient implementation of budgeting practices and that districts need to be given the authority to control budgets that have a direct bearing on their service delivery requirements.

The WHO Comprehensive Cervical Cancer Control Guide[20] outlines four essential components of cervical cancer programmes, namely: primary prevention, early detection through awareness and organized screening programmes' diagnosis and treatment and palliative care for advanced disease. This study contributes to efforts to address the component of primary prevention through organised programmes in the context of resource allocation for service delivery. It is anticipated that the results of this study will have wider implications not only for cervical screening but also for other health programmes, since the principles of planning and budgeting for cervical screening that are explored also apply to other health programmes. It is also hoped that the planning and budget estimation program developed as a result of this research could be adopted by the public sector to become a prototype for planning and budget estimation for health programmes.

1.4. Literature Review

Various national and international data sources, including journals, published papers and online World Health Organisation sources were explored to identify literature on cervical cancer screening programmes, programme planning and budgeting practices. The literature review was intended to identify existing knowledge and ideas around these issues, in order to establish an informed basis for conducting this study.

1.4.1. Cervical screening programmes: Global experiences

Cervical cancer is a malignant disease that is known to affect the cervix or the lower part of the uterus[21]. The disease is attributed mainly to a sexually-transmitted infection by high-risk sub-types of the human papilloma virus (HPV)[21]. In the majority of women, HPV infection does not lead to cervical cancer, while in some women pre-cancerous cells in the cervix develop into invasive cancer[22]. Cervical cancer can be prevented through

vaccination against HPV, which is deemed a useful primary prevention strategy[22]. However, the HPV vaccine is not readily available in many low and middle income countries (LMICs), thus in many of these countries cervical cancer is detected through a Pap smear, which is a commonly-used and globally-proven cervical screening test[22].

Reduction of cervical cancer incidence has been feasible in countries where cervical cancer screening programmes are well-organised and adequately resourced. For instance, in a high income country like Iceland cervical cancer mortality rates were reduced by 84% between 1965 and 1982 following a rigorous cervical screening undertaking[22]. Other successes though less dramatic, have also been reported in New Zealand where over 95% of eligible women enrolled in the cervical screening programme and in the first 10 years of establishing the programme the incidence of cervical cancer reduced by 40% and deaths by 60%.[23]

Chile, a middle income country, also successfully reduced cervical cancer incidence through implementing a well-organised cervical screening programme.[24] Overall, the success of cervical screening programmes is attributed to[25] a number of factors, including: increasing the proportion of women at risk, who make appointments and uptake Pap smears, enhancing the quality of screening services and improving their cultural appropriateness, and ensuring that women with abnormal smear results are followed up and treated appropriately[25]. International experiences show that the keys to successful cervical cancer screening are a well-organised and managed screening programme, a wide coverage of the target population for screening and a well-resourced programme, including both human and material resources. These are some of the characteristics of the success stories in the countries cited above[25].

According to WHO[25], the countries with the highest cervical cancer incidence and mortality rates are those that have the lowest screening coverage. A study of cervical cancer screening coverage in 57 countries indicates differentials in cervical screening coverage between the rich and the poor, ranging from coverage of over 80% in richer countries to 1% in poorer countries. This reflects the acute shortage of cervical cancer prevention services in many poor countries, especially in Sub-Saharan Africa[26].

For instance, Sankaranarayanan et al[27] state that appropriate legislation and political commitment to invest in infrastructure and human resources are critical to sustainable cervical cancer programmes. This according to these authors, need to be supported by a combination of enablers such as education, awareness, advocacy, well-organised and managed screening services, early detection and treatment. These authors maintain that it is virtually impossible for any cervical screening programme to reach its desired goals in the absence of these enablers, particularly an ongoing dedicated budget. Sankaranarayanan et al also argue that a glaring difference between High Income Countries (HIC) and LMICs in implementing effective cancer control programmes is in these enablers, where well-resourced and well-managed programmes are more prominent in HIC, while the same may not be said for LMICs. Even the minimum basic facilities for diagnosis and treatment are not in place in some of these LMICs, particularly in sub-Saharan Africa.

1.4.2. Cervical Screening Programme in South Africa: Implementation Challenges

It is estimated that about 3, 700 lives could be saved each year if the HPV vaccine was available and accessible to girls in South Africa.[28] The HPV vaccine is however not yet available in the public health sector. South Africa's cervical cancer prevention strategy

thus relies on secondary prevention through screening. Since the cervical screening policy guidelines were established in 2000, all nine provinces in South Africa have implemented cervical screening services, but to varying extents[29].

By 2008 South Africa had an effective cervical screening coverage amongst eligible women (aged 25 -64) of 20% and a crude coverage of 30%. The former refers to the proportion of women eligible for a Pap smear who report that they have had a pelvic examination and Pap smear in the past three years, while the latter refers to the proportion of women eligible for a Pap smear, who report that they have had a once-off pelvic examination, regardless of when this happened. However, 50% of eligible women have never had a pelvic examination or a Pap smear[30]. KwaZulu-Natal, one of South Africa's poorest provinces, has a screening coverage of 26% which is lower than the national average and is consistent with the fact that large numbers of women are not reached with cervical cancer screening services[31].

Several challenges relating to health systems and service delivery have been identified through empirical research as possible barriers to the cervical screening policy implementation and contribute to low screening coverage. Moodley[31] states that one of the key barriers is poor uptake of services amongst eligible women, due to their lack of awareness of cervical cancer and the role of screening, which results in low consumer demand. Low budget allocations for screening services is said by Moodley to be another barrier, exacerbated by competing health service priorities, as well as the lack of political will to commit resources to cervical screening programmes.

Health worker resistance has also been documented as a barrier. Smith et al[32] in their study of health facilities in Mitchells Plain report that nurses in these health facilities were

opposed to and misunderstood the national screening policy. These researchers argue that other key underlying challenges include poor or inadequate programme management capacity. For example, they report that the successful implementation of the cervical screening policy is hindered by a lack of management capacity and inadequate guidelines for managers; especially those at district level, on how to plan for implementing screening services[33].

The gap is underscored by the fact that cervical screening programmes are complex entities comprising several important components that need to operate in an interrelated manner, thus requiring managers to effectively coordinate the component parts[34]. However, what these components were and the roles that managers at district level were expected to play in coordinating and managing them had not been defined for the public sector. The Cervical Health Implementation Project (CHIP) was thus set up to address this gap and through research, the CHIP identified the essential components of a screening programme at district level as depicted in Figure 1 below[35]:



Figure 1: Components of a screening programme in South Africa[35]

This approach suggests that planning must ensure the state of readiness for all these components where: a) client recruitment is maximised through creating awareness and demand, b) screening services are organised to include appropriate equipment and trained staff, c) cytology services are strengthened to ensure quick result turn-around times and uniform cytology reporting and quality assurance, d) client management at primary care level uses standard screening guidelines and mechanisms to track those with positive smears, e) colposcopy and treatment services are accessible and f) referral and feedback pathways exist between screening and colposcopy services. It is important that planning for these programme components should draw linkages with other support services such as staff supervision, stakeholder involvement and transport and referral pathways amongst others[35].

The CHIP study demonstrated that cervical screening services could be implemented at district level through a rational and logical way of planning and budgeting for each of the components based on needs. A key output of the CHIP – a guide for programme managers[35], recommends that for cytology-based screening programmes to function effectively, the programme components must be in place, fully functional and properly co-ordinated. Importantly, planning should be done in a rational manner, following these broad steps:

- Determine the size of the population to be covered by screening (target population),
- Determine screening coverage targets per annum,
- Identify the programme needs = processes and activities (within each component indicated above) that need to be implemented to meet the coverage targets,
- Quantify budgetary and other resource implications for the identified programme needs,

- Develop a costed project implementation plan,
- Implement services,
- Monitor and evaluate implementation.

The CHIP provides step-by-step guidance on how managers can identify the various aspects of a screening programme that need to be implemented and how these interrelate, as well as how they set up each of the programme components. However, a key gap remained that was not addressed in the CHIP. The gap was the lack of guidance on how to identify what is needed for implementing a screening programme and to quantify resources required for implementing the programme. Previous research shows that this is an important issue. The literature reviewed in this indicate that successful implementation of the cervical screening policy in South Africa is hindered by a lack of guidance for managers on how to allocate resources and that low budget allocation for screening programmes contributes to sub-optimal implementation and coverage (e.g., Smith et al[32] and Moodley[31]). A hypothesis arising from the CHIP was that although a policy for cervical screening was put in place in South Africa, implementation was a challenge due in part to the lack of a clearly defined process for quantifying resources needed and for budget estimation at district level.

1.4.3. Background to national budget allocation and budgeting approaches

In South Africa direct responsibility for the national budget rests with Cabinet and National Treasury[36]. Funds are allocated from national government following a process referred to as the vertical division of the national budget, which involves first taking off a portion of the budget for servicing the state debt, followed by broad allocations to national, provincial and local levels of government. Budget allocations to provinces from the national treasury are in the form of block grants (referred to as the equitable share)[36].

The vertical division of funds is followed by the horizontal division where each provincial Treasury allocates the received equitable share amongst various departments (health amongst them) in the province. The provincial health department (like other departments) motivates for its share of these funds. Provincial health departments, on receipt of their respective shares, further allocate funds to different services such as hospital services, district health, primary care services and others[37].

Provinces also receive conditional grants (or grants earmarked for particular programmes) directly from the national treasury. These grants are a mechanism for national government to ensure provinces allocate budgets to national priorities[37]. Provincial departments of health contribute to the funding of district health services through direct expenditure on provincially-defined disease-specific health programmes and provision of services at primary care (clinic) level. Thus, disease-specific programmes such as those for cervical cancer screening, HIV/AIDS or TB control often receive a designated budget that is controlled at the provincial level[37].

Gapenski[38] explains that ideally, planning and budgeting based on service provision needs should precede these broad budget allocations. However, since this is not often the case, following these broad allocations and to enhance effective planning and budgeting, the bottom-up approach to planning and budgeting should be encouraged and practiced. This would involve adopting a situation where implementation plans and their corresponding budgets are first developed by departments or programme managers who are most knowledgeable about their service provision needs and these should be submitted to higher authorities such as national or provincial authorities to plan and request funding from their Treasuries on the basis of systematically identified programme

needs. More so because budgeting forms an important part of services provision planning cycles, including planning for health services in particular[38].

In South Africa planning for health services and programmes; as with other government services, is guided by legislated budgeting and planning cycles. The cycles begin with a 5 year election term programme, which is translated into departmental 5 year strategic plans[39]. The 5 year strategic plans are operationalised through annual planning, where annual performance plans with medium term expenditure frameworks are developed. The strategic plans may be amended during the 5 year term through annual planning, for alignment with emerging programme and financial needs. Reporting requirements in this regard include mid-term reports, annual reports, quarterly reports and monthly reports[39].

The National Treasury Framework for Strategic Plans and Annual Performance Plans cited above prescribes that planning for services must always be aligned to budgets for the services that are envisaged. The Framework further indicates the major importance of the visibility of relations or linkages throughout the processes of planning, budgeting, implementation, reporting, monitoring and evaluation cycles, such that departments can account more logically for their performance and related expenditure.

The National Treasury Framework for Strategic Plans and Annual Performance Plans further states that National Plans and their respective budgets must be aligned to objectives of their major service delivery focal points, such as provincial, district and municipal development plans. As such, lower levels of planning and budgeting for service delivery must form a significant consideration during planning and budgeting at a higher or National level. Accordingly, programme implementers at service delivery level should be competent in planning and budgeting processes, in order to respond

appropriately to national priorities as well as their service provision plans. Thus in principle, the planning cycle assumes that budgets are calculated or estimated on the basis of annual performance plans that reflect set priorities and service provision needs of implementing agents.

Planning and budgeting are said by some authors to be inseparable concepts and a budget process is seen as far more than the appropriation of funds for a series of line items[40]. According to the Government Finance Officers Association[40], good budgeting involves amongst others, a comprehensive process that has planning, political, managerial, communication and financial implications that recognise a basis for future improvement of the budget process. Thus budgeting is defined by the Association cited above as a process that consists of activities that encompass the development, implementation, monitoring and evaluation of a plan for the provision of services. A good budget process would therefore include the following elements:

- A long-term perspective,
- Relates to the wider organisations goals and objectives,
- Centred around results and outcomes,
- Emphasises effective communication with and feedback to stakeholders,
- Has a clear purpose that implementers are familiar with and are motivated to achieve[40].

Thus according to Gapenski[38], the value of a budget process lies in its ability to assist in the expression of the strategic plans of an institution. Gapenski[38] also argues that it is important that an institution applies the budget type that is appropriate for its institutional operations and the required budget forecast. Some of the most commonly used types of budgets according to Gapenski[38] include:

- The **Volume Forecasting Budget,** which typically involves calculations or estimations of the volume of services to be provided. With this type of budget, an implementer may explore volume trends in demand for a particular service over a period of time and make a preliminary forecast of service demand, assuming a continuation of past trends. Volume trends may also be used with target population statistics, factoring in population growth, disease trends, economic conditions and other internal actions that may affect estimated demand and estimate the budget forecast accordingly. Of major importance to note in this type of budget is that valid information must be used to inform forecasting, to minimise over or under estimation of funding requirements. This type of budgeting has the potential to facilitate needs-based budgeting as it considers target populations, service demand as well as disease trends amongst other variables to be considered during planning and budgeting.
- The **Revenue Budget** is commonly used in government institutions, where the bulk of the revenues typically arise from governmental appropriations. Thus implementers need to consider the institution's fee-setting strategy as well as third-party payment rates that affect revenues from services provided as opposed to appropriations. Operating revenues, appropriations and other revenues such as interest need to be forecasted in the prescribed timelines, for instance, monthly or quarterly or both.
- The **Expense Budget** is driven by the scope of service provision, although the focus is mainly on the cost of services provided, but similar to the revenue budget, the expense budget is a compilation of expense forecasts for departments,

programmes or services. The expense budget may also include expenses for labour and non-labour components such as equipment.

- The **Operating Budget** typically covers revenues and expenses around the daily operations of an institution, including overheads and administrative costs. Operational Budgets are normally managed through shorter reporting periods, for instance weekly or monthly and allows budget adjustments as informed by variations during reporting periods.

It must be noted however that government departments are more likely to combine some or all of the above budget types as required by the nature of their business operations[38].

Various budget tools supported by different software also exist to guide budgeting and financial management. While South African government departments are more likely to use budget tools such as the Systems Applications Processes (SAP) and the Generally Recognised Accounting Practice (GRAP)[41], other tools exist, including tools such as[42]:

- The **Revenue Projection Model**, which provides a comprehensive Excel forecasting mechanism that analyses quantities of budget items, prices and percentage increases to give different possible outcomes. This tool may be customised to meet the required needs for an institutional budget process.
- The **Capital Budgeting Analysis with Excel Model,** which assists budget planning for future services, by estimating the value of services or processes required to implement a programme. This tool also provides an Excel spreadsheet model that allows for the organisation of different project metrics and their value.

The Budget cycle described above assumes that departments develop their Annual Performance Plans and corresponding budgets to motivate for the appropriate funding for their programmes. However, Gapenski[38] argues that; despite this good intention, budget allocation to departments is often determined by what Treasury has in its reserves, rather than needs-based. Furthermore, the author maintains that many budgeting tools used by government do not assist departments to optimise the achievement of envisaged goals, often because:

- The tools are usually implemented in a manner that does not inculcate core budgeting principles and practices in programme implementers.
- They are often implemented in a manner that focuses mainly on payment for goods, services or compensation of employees and rarely align these to the achievement of institutional goals or meeting pre-determined service requirements.
- They are often applied top-down, where budget decisions are not systematically informed by needs at programme implementation level.

1.4.4. District level planning and budgeting for services

In South Africa, following decentralisation and establishment of the District Health System (DHS), the expectation is that districts are the locus of policy implementation, and as such, district level managers are expected to exercise authority over planning and budgeting for all health services within their jurisdictions. To facilitate this, the National Department of Health resolved to strengthen planning and budgeting processes and improve financial management systems and skills throughout the health system[43]. No studies have been done to examine whether district managers do indeed undertake programme budgeting and resource allocation functions. However, indications are that despite policy requirements for decentralisation of budget control to districts, there is still

central control mainly at provincial level, with non-involvement of service managers in budgeting processes at district level[43].

According to Palmer[44], budgeting should be an important district management tool that enables district managers to link their resources to service provision activities and the overall health objectives. However, this author argues that this does not necessarily happen in practice in South Africa's district health system. Firstly, planning and budgeting are often carried out in a provincially centralised and prescriptive manner, thus limiting district health managers' involvement in budgeting processes. Secondly, the approach to planning and budgeting is not based on population needs at both the provincial and district levels. Instead resources are allocated according to staffing levels and assessments of running costs, which is described as needs-based, with no direct link between the budgeting processes and planning for service delivery.

Other problems in planning and budgeting for service delivery are related to programme implementers' lack of accountability and capacity. It is argued that lump sums are often allocated by provinces to districts that are not obliged to follow any reporting mechanism to higher levels and where there is often a lack of managerial capacity to plan and budget for programmes and services[45]. The Health Systems Trust (HST)[45] study to strengthen service delivery capacity for sub-districts indicated that there were structural and capacity weaknesses that hindered effective service delivery. These included unclear planning, budgeting, implementation and reporting structures between the provincial and district levels of government, as well as programme managers' limited capacity in planning and budgeting for services, including financial management.

Whereas national legislation such as the White Paper on the transformation of the Health System of 1997 dictates that districts should control budget for service delivery, this function is still highly centralised at provincial level, with the argument that districts are not yet ready to control their budgets, while districts argue that decentralisation is too slow, preventing them from implementing policy as required. Thus the delegation of financial control at district level is not operationalised[46].

Engelbrecht et al[46] state that interventions to address structural and capacity weaknesses yielded positive results, such as improved service provision. It was therefore recommended that accountability mechanisms should be complemented by training to build basic planning and budgeting capacity for relevant managers. Lehmann[47] further elaborates that remedying structural hindrances to effective planning and budgeting and capacitating programme implementers to adhere to planning, budgeting, implementation, monitoring and evaluation, as well as reporting cycles, yield improvements, where effective planning and budgeting for service delivery is found to improve.

Barron as cited earlier, argues that programme implementers at service delivery level are not involved in managing the finances of the services they provide, while with decentralisation of the management of health services, managers are required to effectively use resources in their areas of jurisdiction. This Barron argues, would be achieved by involving programme implementers in both the service management cycle and the financial management cycle as directed by national legislation, which calls for a bottom-up approach to planning and budgeting.

Research elsewhere supports the bottom-up approach to planning and budgeting. A study of the challenges of budgeting in a newly formed district health system in Nigeria

showed that a bottom-up approach was used at the district level to motivate for funds from higher structures, while the concept of business planning was introduced to underscore the seriousness of health planning and efficient resource allocation at the higher levels[48]. Business planning in this regard was a process of linking budgets to the organisational mission, goals and objectives, as well as outlining strategies that would be applied to meet these. Business planning was thus a concept of applying the principles of cost-benefit in planning for health services, where cost-benefit implied that budget allocation was aligned to defined indicators for organisational, programme or service outcomes[48].

Although this was found to facilitate better rational budget allocation, as with other findings cited earlier, hindrances to effective budgeting for district health services were found to include amongst others, non-functional financial management systems as well as inadequate capacity for planning and budgeting amongst district health officers[48].

In summary, the literature demonstrates that while national legislation provides a framework (in principle) for managers at sub-national level to plan and manage health services in their jurisdiction, decentralisation of budget control powers to districts has been slow and there is limited capacity for planning and budgeting for service delivery at district level. The literature also reveals that effective planning and budgeting is often hindered by practices that are top-down and often not involving programme implementers in planning and budgeting and budgets that are often not informed by service delivery needs.

As indicated in the literature above, various initiatives have been conducted (e.g., the CHIP) by the Health Department in collaboration with other institutions, yielding tools and guidelines for programme managers to implement cervical cancer screening services at

district level. The research described in this dissertation builds upon this previous work, taking lessons from the CHIP to develop a complementary management tool that aims to further facilitate effective implementation of cervical cancer screening programmes at district level.

1.5. Aim and objectives of the study

1.5.1 Aim

The aim of the study is to develop and test a budget planning and estimation tool that would assist health managers to follow a systematic and needs-based process to plan and estimate budget requirements for implementing cervical cancer screening programmes.

1.5.2. Study Objectives

This study set out to achieve the following objectives:

1. To describe current budgeting practices for health programmes at provincial, district and facility (clinic) levels.
2. To identify and document appropriate process requirements for the implementation of cervical cancer screening services.
3. To use identified process requirements to develop a budget planning and estimation program for cervical cancer screening services.
4. To test the budget planning and estimation program.

As indicated in the glossary, the word ‘program’ is used in this dissertation to refer to the budget planning and estimation program, while ‘programme’ is used to refer to health service programmes such as the cervical cancer screening programme or where reference is made to programme managers.

CHAPTER 2: METHODOLOGY

This chapter describes the methods that were applied in the study, including the description of the study design, setting, study population and sampling methods, data collection and variables, data analysis, ethics requirements and study limitations.

2.1. Study design

This was a cross-sectional descriptive study conducted in three of South Africa's nine provinces, involving mixed methods of data collection and analysis. The study was conducted in four phases. Phase 1 was a situation analysis conducted to document current budgeting practices for cervical cancer screening services and to identify strengths and gaps in budgeting processes. Phase 2 was a descriptive study in which the activities and processes required to implement a cervical cancer screening programme at district level were documented based on the CHIP interventions. On the basis of these process requirements and the findings of the situation analysis, a computerised budget estimation program was developed in phase 3 of the study and the program was tested in phase 4, through interviews with key informants in the three Pilot sites.

2.1.1 CHIP background and current research approach

This study was conceptualised as part of the Cervical Health Implementation Project (CHIP) as cited in the literature review. The CHIP was a research initiative implemented by the Women's Health Project at the University of the Witwatersrand, in collaboration with the Women's Health Research Unit at the University of Cape Town, the National Department of Health and EngenderHealth. In conjunction with health authorities in three pilot districts, the CHIP implemented and evaluated specific cervical screening programme activities to identify those that were deemed necessary for implementing the cervical screening programme at district level as appropriate to the South African context.

The activities implemented and evaluated by the CHIP project included community information and education, health worker training at primary care level on how to screen, client tracking and follow-up mechanisms, referral mechanisms and linkages between screening facilities and colposcopy and treatment centres and the development of tools to monitor implementation.

This current study uses these activities as a starting point to further explore the development of a tool that can facilitate a rational process of identifying resource requirements and budgeting for implementing the activities – i.e. a programme needs analysis to identify the specific resources required for each activity and quantify the costs.

2.2. Study setting

All four phases of the research were conducted in three pilot districts in South Africa, i.e., one in Limpopo province (rural), one in Gauteng (urban) and one in the Western Cape (peri-urban). These were the Pilot sites for the CHIP. For the CHIP the three sites were selected to enable comparison of data from diverse settings, i.e., rural, urban and peri-urban. For the purpose of this current research, the three sites are designated sites A, B, and C respectively, to ensure anonymity of the districts. All the facilities that participated in this study provided primary health care (PHC) services, including antenatal and reproductive health care. However, none had established cervical cancer screening services prior to the CHIP. Screening services were established during the CHIP as described earlier.

2.3. Data sources and sampling

2.3.1. Phase 1: Situational analysis

The data sources for the situation analysis were interviews with key informants and the review of management documents; the latter aimed at collecting data to support findings from the interviews.

Key Informant Interviews

The study population for key informant interviews was managers who were responsible for managing health care services, including some aspects of cervical screening. These managers were located at provincial, regional, district or local authority and facility (or clinic) levels, as well as area supervisors who were responsible for overseeing clusters of clinics in designated local areas. Only managers who participated in the CHIP were eligible for inclusion in the interviews.

The pilot districts differed in terms of the number of participants, as some of them had more facilities than others. In pilot site C all clinic managers who participated worked in Local Authority (LA) clinics. Sites A and B had only one LA clinic each and the rest were provincial clinics. Convenience sampling was used, where available managers who participated in the CHIP were interviewed. Thirty six participants were included in the sample. The participants are displayed in the table below:

Table 1: List of key informants for the situational analysis

Pilot Site	Key Informant Position & Level of Management	No.
Site A	Provincial PHC Manager	1
	Provincial Maternal & Child Health Manager	1
	District PHC Manager	1
	Area Supervisors	4
	Facility Managers	5
Sub-Total		**12**
Site B	Provincial Reproductive Health Manager	1
	Provincial Finance Manager	1
	District Head of Health Services	1
	District Finance Manager	1
	Area Supervisors	2
	Facility Managers	7
Sub-Total		**13**
Site C	Provincial Reproductive Health Manager	1
	Provincial Finance Manager	1
	Regional Reproductive Health Manager	1
	Regional Programme Manager	1
	District Hospital Manager	1
	Local Authority Finance Manager	1
	Facility Managers	5
Sub-Total		**11**
Total		**36**

The numbers of key informants per management levels were 6 provincial, 2 regional, 5 district and 17 facility managers as well as 6 area supervisors.

Review of Management Documents

Management documents that were eligible for inclusion in the study were all supporting documents that managers used for their planning and budgeting processes. The envisaged documents required for inclusion in the study included those that documented or described the following:

- Costed service provision plans,
- Budget allocated to service provision plans,
- Budget motivation documents,
- Performance and expenditure reports,
- Evaluation reports of the performance of health programmes (e.g., activities implemented, service demand, turn-around time for results, expenditure against programmes and recommendations for future planning and budgeting).

However, not all the pilot sites had in their records the envisaged management documents, thus the managers were asked to produce any documents they had used for planning and budgeting. The documents shown in the following table were produced and were included in the document review:

Table 2: Management documents reviewed in the situation analysis

Level of management	Pilot Site A	Pilot Site B	Pilot Site C
Provincial	Copy of budget allocations to various programmes in the PHC directorate, indicating only annual allocations for each programme.	Nil	A report of the format of the resource allocation process, indicating only amounts allocated to various services (e.g., PHC, health promotion, mental health, etc.).
Regional	-	-	Copy of budget allocations to various regional programmes in the Reproductive Health directorate, indicating only annual allocations for each programme.
District	Nil	Copy of annual budget allocations to cost-centres.	Nil
Area	Nil	Copy of each clinic's budget allocation to various services.	-
Facility	Order forms for general clinic equipment.	• Clinics' copies of budget allocations to services. • Motivation letters for resources required.	Order forms for general clinic equipment.

2.3.2. Phase 2: Identifying processes required for implementing a cervical cancer screening programme

Data sources for this phase of the study were material developed as part of implementing the CHIP, which included forms, guidelines, educational material, documents that

outlined process requirements or components and activities of a cervical screening programme and tools such as those for calculating target audiences and for conducting staff and equipment audits. As such, screening programme process requirements were compiled from unpublished documents that were developed at the early stages of implementing the CHIP project.

2.3.3. Phase 3: Development of the budget planning and estimation program

The data sources were the process requirements documented in phase 2 of this study. These were arranged in a logical manner and used by the researcher to develop an Excel-based budget planning and estimation program. A programmer was then contracted to convert the Excel version into a user-friendly program, using free or affordable programming software in the market.

2.3.4. Phase 4: Testing the budget planning and estimation program

Data sources were key informant interviews with participants in the three CHIP pilot sites. It is however important to indicate that the participants included here were not those who had participated in the CHIP. By the time phase 4 of this research was conducted, the CHIP had been completed and the managers who participated in the CHIP were no longer accessible to the researcher. Therefore, participants for phase 4 were selected through snowballing. Snowballing involved a form of sampling in which the researcher identified an individual perceived to be an appropriate respondent and the individual was then requested to identify another appropriate respondent[49]. Purposive sampling was also used, where managers who were deemed suitable (by virtue of their portfolio) to test the budget planning and estimation program were selected. Participants were also deemed suitable if a) they worked for the public sector, b) they were managers at the levels of focus of this study and c) they were involved in programme management, financial management and or accountable for health service delivery imperatives.

Although the most preferred participants were those who worked in the health system, not all the participants were from the health system. Three managers from outside the health system were included not only because health managers did not reach the desired minimum number of participants, but also on the basis that they would provide valid data, since the principles behind the budget planning and estimation program and the program testing questions would apply to other service delivery programmes. Fifteen participants were therefore included in the sample and the distribution of participants per pilot site is shown in the table below:

Table 3: List of key informants for the testing of the budget program

Pilot Site	Key Informant Position & Level of Management	No.
Site A	Manager: District Office (PHC)	1
	PHC facility managers	3
	Deputy health facility manager	1
	Community liaison officer	1
Sub-Total		**6**
Site B	Assistant Manager: Finance – Health District Office	1
	Assistant Director: Special Projects – Health District Office	1
	Assistant Manager: Health Information Systems – Health District Office	1
	PHC Health facility managers	2
	Deputy PHC health facility manager	1
Sub-Total		**6**
Site C	Deputy Director: Provincial Department of Agriculture	1
	Director: Premier's Office	1
	Procurement Manager: Premier's Office	1
Sub-Total		**3**
Total		**15**

2.4. Data collection and variables

2.4.1. Phase 1: Situational analysis

Key Informant Interviews

A key informant information sheet with consent (Appendix A) was handed to participants prior to administering a structured questionnaire in English (Appendix B). The key informant interviews were intended to describe current budgeting and resource allocation practices for health services in general and specifically for cervical cancer screening services. Thus data were collected to describe the following:

a) Existing budgeting and resource allocation practices for health programmes at different management levels of the health system,
b) Existing budgeting and resource allocation practices specifically for cervical cancer screening programmes,
c) Rationale for budget allocations to cervical cancer screening programmes,
d) Manager's involvement and autonomy in budget decision-making,
e) Managers' knowledge, opinions and perceptions of budgeting processes,
f) Perceptions of whether a district-based budgeting system would be supported at different management levels.

Review of Management Documents

Management documents were reviewed at different management levels as indicated in table above. The document review aimed at identifying how and the basis upon which decisions about budget allocations to cervical screening services were made, in order to complement data from the interviews. The documents were reviewed to describe the following variables:

1. Budgeting motivations and what was motivated for,

2. The basis for the budget motivations,
3. Budget amounts allocated – to districts and to facilities,
4. Performance and expenditure reports,

Relevant documents were requested at each level of management during the key informant interviews. However, in the absence of the envisaged documents, the documents in the table below were availed for review in the three pilot sites and the table also indicates data that were collected:

Table 4: Data collected from the review of management documents

Level of management	Management Documents	Data Collected
Provincial	Copy of budget allocations to various programmes in the PHC directorate. A document said to be a report of the format of the resource allocation process.	Overall annual allocations for each programme. Ball figures of annual allocations to various services (e.g., PHC, health promotion, mental health, etc.).
Regional	Copy of budget allocations to various regional programmes in the Reproductive Health directorate.	Overall annual allocations for each programme.
District	Copy of annual budget.	Overall annual allocations to cost-centres (e.g., drug supplies, staff salaries, facilities, etc.).
Area	Copy of each clinic's budget	Unspecified (period of allocation) allocation to various services.
Facility	Clinics' copies of budget allocations to services. Order forms for general clinic equipment. Motivation letters for resources required.	Unspecified (period of allocation) allocation to various services. While order forms would usually be completed to indicate required equipment types and quantities, the motivation letters would typically be written by facility managers, requesting for instance replacement of broken or malfunctioning equipment, e.g., a fridge.

2.4.2. Phase 2: Identifying processes required for implementing a cervical cancer screening programme

Data collection involved a descriptive exercise in which as a member of the CHIP team, the researcher compiled and documented the processes and activities for implementing a cervical screening programme as identified through the CHIP interventions. In order to budget for a health programme effectively, health managers need to be able to identify the necessary activities and resources required to implement the programme, so that they can budget accordingly. This phase of the study therefore documented the resources that were needed to implement a cervical screening programme based on the programme activities identified in the CHIP research. The primary researcher collected data to outline the steps that a manager would follow to define the resources needed to implement screening services for a district or health facility. The steps are listed below:

a. Determining the screening target population within the district (or clinic) catchment area.
b. Calculating the annual screening coverage target if the district (clinic) is to attain 70% coverage of the target population in ten years.
c. Documenting the screening programme activities implemented and tested during the CHIP, including activities such as community information and education, health worker training, client tracking and follow-up and referral and feedback amongst others as described earlier.
d. Identifying and quantifying the resources required to implement these programme activities. Tools (e.g., target calculation formula) that were developed in the CHIP were applied to gather data on the required resources. It is important to indicate here that costs for identified resources are not provided in this study; rather,

managers are guided to determine resource quantities based on envisaged coverage of the target population amongst others, and then acquire price lists/costs for the required resources, which would inform the calculation of the overall budget for services.

After documenting the required resources and tasks for each activity, the next step was to develop a simple computer-based program that implementers of the cervical cancer screening programmes could use to estimate the costs of the identified resources and thus determine the budgetary amounts required to ensure adequate resources for implementation.

2.4.3. Phase 3: Development of the budget planning and estimation program

Data on the process requirements that were documented in phase 2 of this study were organised and entered into an Excel spreadsheet, where the processes were listed according to the key components of the cervical screening programme as identified in the CHIP (Appendix C). The Excel spreadsheet thus depicts six main columns, with the first column listing components of a cervical screening programme, next to which is a column for related activities, followed by one for required resources for each activity. In the last three corresponding columns, the first two provides for capturing resource quantities and unit costs for each resource. The last column provides for the calculation of sub-total costs for each resource and an appropriate formula was embedded in this column for this purpose.

The Excel spreadsheet also includes guiding notes to guide the user on how to perform each activity on the spreadsheet where necessary. A programmer was contracted to use available software to convert the Excel spreadsheet into a user-friendly budget planning and estimation program. The program is available on CD (Appendix D) and can be

accessed online (www.wix.com/jamelarobertson/jamelarobertson). The variables selected in collecting data in this section of the study were a direct response to the findings of the literature review and the situational analysis, relating to the lack of management capacity to plan and budget for service delivery programmes.

2.4.4. Phase 4: Testing the budget planning and estimation program

This phase of the study involved testing the budget planning and estimation program in each of the pilot sites. The testing explored perceptions of the potential users of the program regarding the usefulness of the budget program, and assessed whether managers perceived that the program could:

a. Help health managers to undertake rational budgeting where allocations are informed by local needs,
b. Help health managers to define processes and resources required for implementing cervical cancer screening programmes,
c. Be feasibly linked to existing budget planning and estimation processes,
d. Be feasible to implement at various levels of jurisdiction (e.g., provincial, district or facility),
e. Be acceptable for budget planning and estimation purposes in various levels of jurisdiction,
f. Be easy to integrate to other management systems in various levels of jurisdiction.
g. The testing also assessed whether participants would need additional support to use the program.

The budget planning and estimation program was given to each participant in a CD. The study participants were also given a structured questionnaire in English (Appendix E), which included an introduction and background to the testing of the program, instructions on how to install and use the CD and the estimated time this would take. The

questionnaire included a list of questions that collected data on each participant's experience of using the budget program and their opinions of its feasibility and acceptability as outlined above. The participants were given about a week to test the program and to participate in a telephone interview thereafter. Telephone interviews were therefore used as a method for data collection.

2.5. Data management and analysis

The study collected both quantitative and qualitative data in phases one and four. Quantitative data were analysed using excel and descriptive statistics were employed in the standard format. Frequency distributions were determined for each variable and were presented mainly in graphs. Coding and thematic analysis were manually applied to qualitative data collected from open-ended questions. Themes were derived according to the issues of interest in this study. Qualitative data were also presented in quotation format. Qualitative data collected from the review of management documents in phase 1 were also analysed thematically.

Data collected in phase 2 (information documented from the CHIP) and phase 3 (program development) were not analysed as such, but were organised in an excel spreadsheet according to the four main variables for defining resource requirements as listed on page 43, and this was converted into a more user-friendly computerised budget planning and estimation program.

2.6. Ethics

Ethics clearance was granted by the University of the Witwatersrand Committee for Research on Human Subjects (Medical), for the overall Cervical Health Implementation Project (CHIP) and this study was a component of the CHIP. Informed consent was obtained from all study participants. Participants were informed that participation in the

study was voluntary and should they decide not to participate, it would not be held against them. Confidentiality was ensured in writing, which was included in both the questionnaires for the situational analysis and the testing of the budget program. Also, participants' names were not included in the data collection tools.

2.7. Study limitations

Various methodological limitations were encountered during this study, some arising from the fact that developing the budget planning and estimation program took longer than expected and the study continued after the CHIP had been completed. The limitations were as follows:

2.7.1. On the conceptualisation of the study, it was envisaged that once the computerised budget planning and estimation program was completed, it would be given to managers who participated in the CHIP in the three pilot sites to implement, so that the program could subsequently be tested on the basis of implementation in real situations. However, although these managers participated in the situational analysis (phase 1 of this study), accessing them later for the testing of the budget planning and estimation program (phase 4) after the CHIP had been completed was a challenge. Therefore, the participants for phase 4 did not participate in the CHIP. As a result, in the testing of the budget program the participants used simulated information to estimate resource quantities and costs, as opposed to information that would have come from participating in the CHIP.

2.7.2. A major limitation in phase 1 of this study was the inaccessibility of some of the essential participants who actually made decisions on budget allocations, such as chief financial officers and heads of departments at provincial levels.

2.7.3. In light of the promise of decentralisation and the DHS, the study was initially envisaged to develop a district-based budget planning and estimation program to

facilitate budget allocation to cervical cancer screening programmes at district level. However, the situational analysis revealed the almost non-existence of decentralised authority to plan and allocate resources at district level, as well as the lack of uniform, coordinated and clear budget allocation processes. This meant that there was no existing well-defined district-based budgeting process on the basis of which the budget and estimation program would be designed. Consequently, a district-based budget planning and estimation program would not have been relevant if district managers did not have authority to allocate financial resources to programmes. Therefore, the budget program in this study was designed for use at any level of the health system where managers have the authority to identify needs, plan for the needs and allocate resources.

2.7.4. Due to financial constraints, the budget program that was developed is basic in design, in that it does not have complex functions such as the generation of reports following the calculation of budget estimates. Secondly, the user would need to print screens to retain information entered into the program and calculations generated, since the program does not have functions to navigate back to previous screens where calculations were completed. This resulted from a situation where a student Programmer from the University of KwaZulu Natal (KZN) was contracted to design the program at a lower price, as opposed to professional programmers who were too expensive.

CHAPTER 3: RESULTS

This chapter presents the results of the study, following the sequence in which the study was conducted to explore the four objectives of the study, i.e., starting with a presentation of the findings of phase 1, followed by phase 2 and then phases 3 and 4. The results for phase 1 are presented per pilot site and per management level of the participants where necessary, for comparison purposes between the three sites. The results of phase 2 are depicted in a simulated template of an excel spreadsheet. This is followed by a presentation of the actual snapshots of pages in the computerised budget planning and estimation program developed in phase 3, depicting how budget estimation steps were transformed into the computerised budget program. Phase 4 results are presented thematically in the body of the text and in graphs. The results are combined for all sites and management levels, since the sample was smaller and the responses were highly similar across sites and management levels, rendering the need for comparison immaterial.

3.1. Results of the Situational Analysis

This section presents the findings of the key informant interviews and the review of management documents, where the first objective was explored to describe current budgeting practices for health programmes at different management levels. Different variables as described in the methodology were used to probe information on the budgeting practices.

The key informants described their perceptions of current budgeting and resource allocation processes for health services in general and specifically for cervical cancer screening services. The results are presented below under the sets of questions asked and variables through which information was probed:

a) Existing budgeting and resource allocation practices for health programmes at different management levels of the health system

To explore this question, the respondents described the process of receiving funds and that of allocating funds to different levels of service delivery.

In relation to the process of receiving funds, provincial managers in all pilot sites described a similar process regarding the flow of funds from National Treasury to lower levels of management. Their descriptions of the process were in line with information documented in the literature review. Themes emerging from provincial managers' responses reflected that each provincial treasury department received its share of funds from national treasury based on the equitable distribution formula. Provincial treasuries then distributed the funds to different provincial departments and programmes. Some provincial health directorates received funding from their provincial Department of Health and some from their respective treasury departments.

Some health directorates were reported to also receive earmarked funding and conditional grants from the National Department of Health for priority programmes and this was sometimes complemented by donor funding. In one pilot site a provincial reproductive health manager indicated that she sometimes wrote proposals to raise funds for certain programmes in her directorate. Almost all the participants stated that the funds they received were insufficient and they could not motivate for additional funds outside of the fixed allocations, unless the need for funds arose from unforeseen life-threatening disasters, such as cholera outbreaks.

Respondents' descriptions of the process at lower (sub-provincial) management levels were different from those of provincial managers and this was common in all the pilot sites. However, the descriptions also showed some differences as well as commonalities

between the sites. The common thread across the sites was that at facility level, no motivations for funding were made. Rather, facility managers submitted lists of required resources such as equipment to area supervisors (managers of a cluster of clinics) or district procurement offices. Once the lists were approved, the resources would be provided. Different experiences at sub-provincial levels of management in the pilot sites included situations where:

- In pilot site A baseline funding was received from the provincial Department of Health (DoH) and conditional grants from both national and provincial DoH, as well as donor funding. Some respondents in site A indicated that funding came from the province, channelled through the Community Health Service Organisation, which was in charge of all facilities in the province and also generated revenue from the Local Authority services.
- In pilot site B health programmes were allocated funds from the District Finance Department. Area supervisors together with district manager were said to draw budget plans for their local areas and submitted these to the Provincial Services Directorate, seemingly on the basis of which funds were allocated for local areas. Some area supervisors indicated that they motivated for the purchase of certain resources for their clinics from district procurement and these were purchased and delivered accordingly. *"We don't see money at our level",* one area supervisor commented.
- In pilot site C, districts were said to receive regular funding from provincial and local authority offices. Cost-centres (facilities) received subsidies for curative programmes, also from provincial and local authority offices. Running costs (e.g., maintenance) were said to be subsidised by local authority, while categories such as PHC, salaries and medicines were subsidised by the province.

The participants were asked to describe processes which they followed to allocate funds to different levels of service delivery in their jurisdiction. Most of the participants (63%) reported that they had defined budgeting processes which they followed for allocating funds to different levels of service delivery, while 31% said they did not, 3% did not know and another 3% did not respond. Of those who said they followed a defined process, their descriptions of this varied by pilot site and management level.

Commonalities across all pilot sites were that a) at facility level, facility managers were not involved in any allocation process, but as described above, they only submitted their lists of required resources either to district offices or to area supervisors, for approval and provision of the requested resources, b) area supervisors also submitted motivations or resource lists to their district offices for their areas of jurisdiction and c) district managers in all pilot sites also indicated a common thread in which they submitted motivations for funds to their provincial authorities and once funds were received, they allocated these to their programmes or to cost centres, with the size of the allocation determined by their perceived size of the programme or cost centre. It was not clear what informed the motivations or lists of resources that were submitted. Some managers only indicated that they knew the nature of service demand for their programmes and they allocated funds on that basis. Some allocated resources based on the catchment areas of their clinics. Differences across sites regarding the allocation of resources were as follows:

- In site A the national treasury was reported to allocate funds for some programmes directly to districts and the districts divided the funds between their respective programmes. Similarly, the province was allocated funds for programmes that they were responsible for and also divided the funds between their various sub-

programmes. One of the respondents expressed this as follows: *"Out of what is given for my sub-directorate, I divide the amount equally between my programmes"* (provincial manager). Some participants explained that the provincial authority sometimes provided funds that had pre-determined allocations to various sub-programmes within districts. It must be noted though that the notion of fund allocation from national treasury directly to districts sounded unusual as this seemed to deviate from national fund allocation frameworks described earlier.

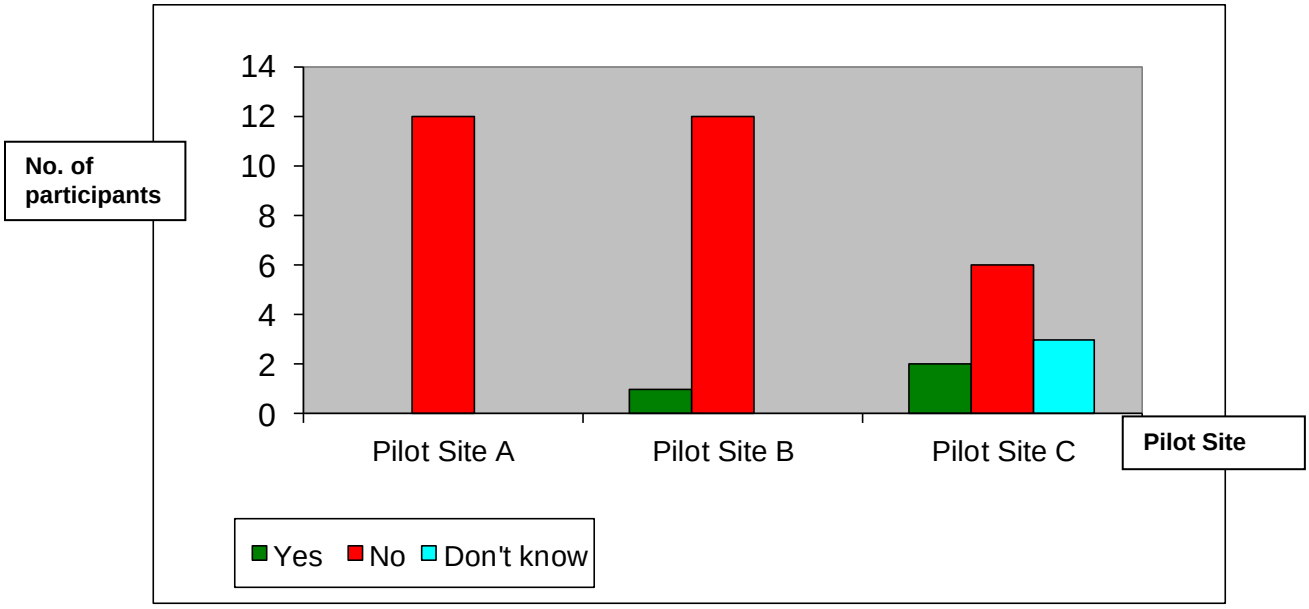
- In pilot site B, as reported by a provincial manager, programme managers were not directly involved in processes for resource allocation: *"I'm not sure. I'm not involved in allocating funds from my directorate".* Another manager indicated that allocations from provincial to lower levels of service delivery were determined by operational plans submitted to the provincial finance department by districts and service delivery centres in the province. Provincial finance divided the budget into 7 programmes: health administration, district health services, provincial health services, academic health services, health sciences, health care support services, health facility development and maintenance. Allocations for these were given to regions that allocated funds to service delivery centres, also according to these programmes. It was reported that provincial finance assisted catchment areas to plan and reserve funds for unforeseen or potential outbreaks.
- In pilot site C it was reported that following the annual budget allocation to the provincial treasury, this office divided the budget proportionately between regions, according to their population size and services provided in the region. Provincial health programmes also received their share, from which a global figure was allocated to regional sub-programmes. Since services were integrated and budgets were global,

regions could not say how much was spent on different services. It was further reported that resource allocation processes were priority-driven and local authority decided what a priority programme or service was. It was also reported that some health services were clustered under one budget allocation that was controlled by district hospitals and material needs for clinics were provided for by these hospitals, where orders for clinic supplies were submitted.

b) Budgeting and resource allocation practices specifically for cervical cancer screening programmes

Participants were asked to describe different variables to solicit information relating to resource allocation practices specifically for cervical cancer screening programmes. The information solicited ranged from the existence of a cervical cancer screening programme to programme implementation and monitoring and evaluation.

The majority (92%) of participants across the pilot sites indicated that there was no cervical cancer screening programme implemented at their level of management. Two participants in one site and one in another (3) indicated that they had a cervical cancer screening programme. However, these participants stated that the programme they were aware of and were currently implementing was the one introduced by the CHIP project. One senior manager who did not know of the existence of a cervical cancer screening programme stated that this was because cervical cancer was not a health priority. Participants who said there was no cervical cancer screening programme commonly reported that cervical screening had traditionally been performed on request in some facilities, however there was no formal programme that they were aware of. The frequency of the participants' responses per site is indicated in the graph below:



Graph 1: Cervical screening programmes existed

It appeared therefore that though managers were generally aware that cervical screening services were provided on an ad-hoc basis, they had never been required to participate in resource allocation processes for these services.

The three participants who said there was a cervical screening programme were required to indicate if the programme had a specific budget, how the budget was determined and whether support systems for implementing the programme were also allocated budget. The responses were as follows:

- In pilot site B, the provincial manager who reported that a specific budget for cervical screening programmes was in existence explained that there was an annual audit conducted by the province, to assess its target population size and other requirements for implementing the screening programmes. On the basis of that audit, a budget allocation to the programmes was determined. The manager further explained that all support systems for screening services were budgeted for, because motivations for resources from sub-programme managers or health

facilities were sufficiently responded to. These statements were despite the respondent having indicated that the CHIP was the screening programme that was currently implemented. Thus it was not clear if the audit and the specific budget were new initiatives implemented as part of the CHIP or if these were already in existence when the CHIP was introduced.

- Similarly, in pilot site C the two managers who reported that they had a specific budget for cervical screening programmes, expressed their perceptions as follows:

"I motivated for it and I was lucky that the money was available, I used data for cervical cancer prevalence to justify my motivation. The largest proportion of the money was given to the largest region. The money allocated to regions was for equipment, IEC material, workshops and meetings" (Provincial manager).

"The money was just given to us, it was the case of saying: 'just jack up the programme', but we do need a business plan to show how we spent the money. We were told the money was for equipment, training workshops and other cervical cancer related activities" (Regional manager).

It was common for respondents to explain that in general budgets were allocated globally to cover various programme activities, rather than specific allocations to each programme activity. For instance a reproductive health programme would be allocated funds for a cluster of reproductive health services. It was also commonly reported that support systems such as laboratories were paid for directly from provincial funds.

In continuing to explore current budget allocation practices, target setting to inform budget allocations was also explored, as well as practices relating to budget allocations to support systems and monitoring screening services.

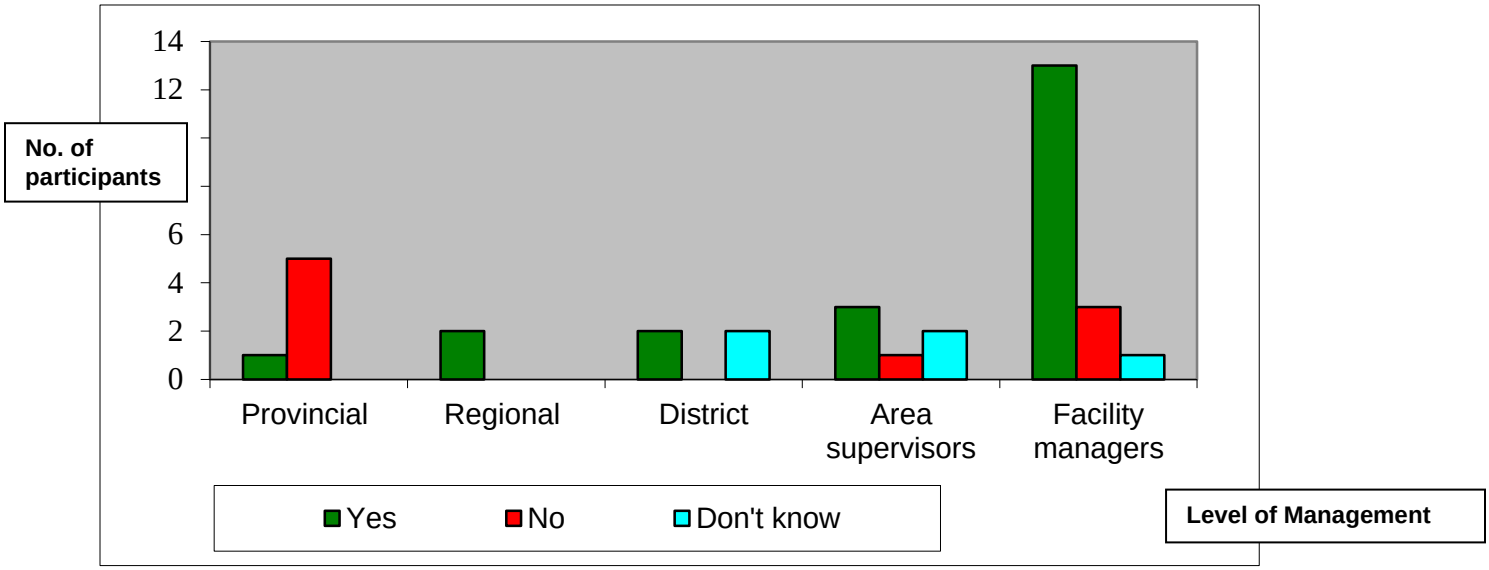
More than half (58%) of the respondents said that they set targets for screening services, though explaining that they started doing this after exposure to the CHIP. However, target setting did not appear to be related to budget allocation, but it was described more as a process of ensuring that eligible women in a catchment area were reached with screening services and also to pursue the achievement of the national target. Of the respondents who said they set targets, 29% said they reached the targets they had set.

However, it was common for the participants to state that the process of setting targets was not well implemented as screening was not yet 'fully fledged'. Respondents who said they did not reach their targets also explained that this was because screening was not yet 'fully fledged' and that women did not request Pap smears because they were not informed about the services. It was also reported by some managers that targets were not reached because there was shortage of trained staff and equipment for performing Pap smears. Some participants felt that to improve this situations awareness campaigns should be launched and facilities should be equipped with both material and human resources to cope with demand. In the descriptions of how targets were set, the following themes and quotation emerged:

- A format developed in the CHIP project was used,
- Staff decided and agreed on a number of Pap smears each should do per day,
- Staff increased their targets when facilities were busy,
- A calculation for the national target of 70% in 10 years was used, and:

"I don't have time to do it, but I know so far I've done eight Pap smears" (Facility Manager).

The graph below indicates responses to whether targets for screening were set at each management level:



Graph 2: Screening target setting was done

Practices regarding budget allocations to support systems were described in relation to the following: systems for referral, health information, laboratories, client follow-up, equipment audits, management guidelines, budgeting systems, as well as trained staff, colposcopy machines and equipment for performing Pap smears.

A common theme in all the pilot sites was the reported lack of systems such as the budgeting systems, health information systems, equipment audit tools, client follow up tools and management guidelines. However, there was a common awareness in pilot sites A and B of the existence of the cervical cancer patient guidelines that were provided by the CHIP, which the respondents often cited. On the other hand, systems such as the health information system and management guidelines were more likely to be reported to exist by provincial managers, while managers at lower levels tended to be unaware of these.

In pilot site C most participants at all levels of management reported that in the main, all essential resources necessary for screening were in place and these included equipment for conducting Pap smears, referral systems, laboratories systems, trained staff and colposcopy machines in referral hospitals. However, client follow-up was indicated to be a challenge, mainly because there was insufficient staff to conduct the required follow up.

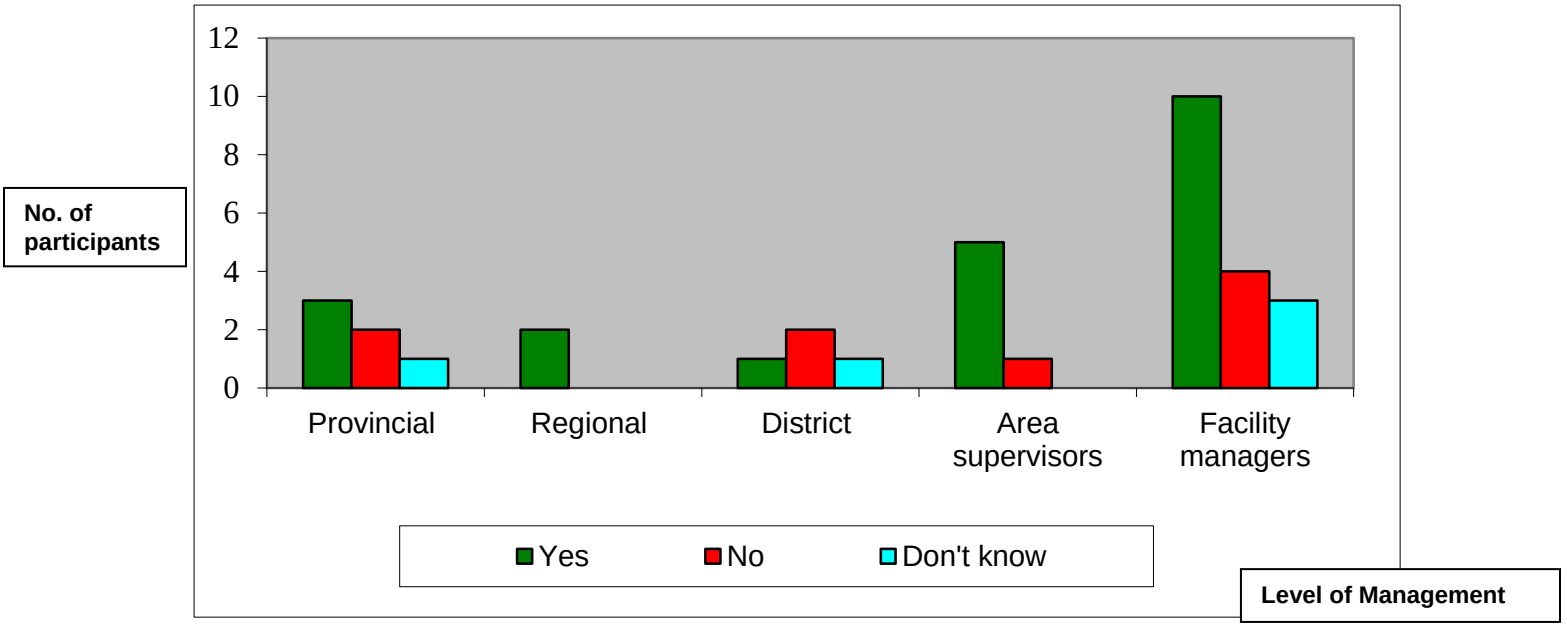
Some of the themes from sites A and B relating to the impact of inadequate processes for budget allocation to support systems included that:

- Some clinics had insufficient or no equipment at all to perform Pap smears, there was insufficient trained staff and patient referral pathways were said to be non-functioning, where transport was reported mainly as problematic.
- No feed-back from referral hospitals about referred clients, laboratory services were also said to be malfunctioning, where turn-around times for results were reported to take as long as six months by some managers.
- In one pilot site managers reported that the referral hospitals had no colposcopy machines, though it was also indicated that the province was in the process of allocating these to the relevant hospitals.

In describing the existence or non-existence of support systems, the participants were likely to indicate that shortages were unavoidable because there was no defined system for determining budget allocations. Rather, global allocations were made without an assessment of what was required for service delivery. This was more pronounced in pilot sites A and B, where there were common reports that most of the listed resources in the study questionnaire were generally insufficient and that they often ran short of basic equipment to perform Pap smears. This perception was even more pronounced at lower management levels, especially facility managers, while provincial managers tended to

report that facilities were equipped with most of the required resources for cervical screening: *"We have 90% of equipment, I don't know about other systems"* (Provincial PHC manager).

In relation to practices of programme monitoring, most participants (58%) reported that they started monitoring their screening services following exposure to the CHIP. Descriptions of how monitoring was done included that a) facilities reviewed their monthly statistics, b) higher levels of management requested periodical (monthly, quarterly, annually) progress reports from lower levels of management, c) in one pilot site quarterly stakeholder-meetings were held to discuss progress, d) in another site statistics were said to be requested from laboratories by the provincial manager to assess client-uptake. The graph below shows the participants' responses per management level:



Graph 3: Screening progress was monitored

The challenge in relation to the statements above about monitoring was that there were no records to support the claims made and monitoring of screening statistics did not

appear to be linked to expenditure, rather, this was done as part of reporting to the relevant authorities.

c) The rationale for budget allocations to cervical cancer screening programmes

Participants were required to describe the basis upon which budgets were allocated to cervical screening services. It had emerged from the onset of this study that there were no specific budget allocations to cervical cancer screening, since global allocations were usually made to a cluster of health services. It therefore makes sense that participants in all the pilot sites and at different management levels commonly reported that theoretically, budget allocations to different levels of service delivery were based on needs as per the motivations and budget plans submitted to higher authorities by districts and programme managers. However, the reality was that the allocations were seldom in accordance with the submitted needs, as reflected in this quote: *"The budget process is resource driven, not needs driven. It identifies priorities and allocates accordingly"* (Provincial manager).

Descriptions of the rationale behind which funds were allocated from higher to lower levels of management were varied across sites and levels of management. For instance, while in some sites managers reported that there were no systems for assessing needs, in others managers would insist amongst others that the use of programme or catchment area size as well as service demand statistics to determine allocations meant that needs were considered. It was clear that need was defined by population or programme size and service demand and not based on any assessment of programme needs.

Again, area supervisors and facility managers in all sites reported their non-awareness of any rationale for budget allocation, as they only submitted resource lists of their needs. However, the following themes emerged from responses of managers at higher levels (provincial, regional and district levels), in the three sites:

- Allocation for programmes and services were based on estimations from clinic statistics, the number of staff in each facility as well as the number of priority programmes and essential services provided.
- Allocations were sometimes said to be based on programme performance, i.e., how much resources were used for the programme and how well funds were managed and accounted for.
- In some sites allocations were determined through assessing previous expenditure per programme or service and adding a 10% annual inflation rate.

The notion that there was no defined rationale for allocating funds in all the pilot sites is demonstrated in the following quotes:

"I know which sub-directorate have too much workload, I allocate according to the workload of each one of my sub-directorates, I know how much each sub-directorate needs, I give 30% to Maternal and Child Health, 25% to PHC, 25% to Health Promotion and 20% to Mental Health" (PHC director).

"I don't allocate funds to my programmes, this is determined at province, finance office authorise my orders" (PHC manager).

"Allocations to clinics are not needs-based, they are guessed" (Facility manager).

d) Manager's involvement and autonomy in budget decision-making

Participants' involvement and autonomy in budget decision-making were explored at different management levels. Participants were required to describe a) the role they played within their institutions or departments, b) the role they played in budget decision-making and c) the line of authority in decision-making for budget allocations to programmes and lower levels of service delivery.

The participants described their roles within their institutions as that of being in charge of the various offices they occupied at different levels (i.e., provincial, regional, districts, facility/clinic clusters or individual clinics). Their main responsibilities were to provide strategic direction to their offices and to ensure the smooth operation of these. Facility managers were also responsible for providing services directly to the public.

Information on managers' roles in budget decision-making was solicited through respondents' descriptions of who decided how much was allocated to cervical screening services at different levels of management. This was intended to explore the extent to which health programme and district managers informed budget decision-making for the programmes they implemented. The participants thus described their roles in budget decision-making and their perceptions of where authority was vested in terms of final budget decisions. The results are presented below by pilot site and management level.

In pilot site A provincial health managers reported that their roles were to prepare annual budget plans in which they outlined all resource requirements for programmes in their directorates and submitted these for funding to the provincial finance department. Once allocations were provided for the budget plans, the managers' roles were to determine allocations to their sub-programmes. However, the CFO and the Deputy Director-General

in the finance department made final decisions in relation to what was allocated to directorates and sometimes their sub-programmes.

District managers also indicated that their roles involved preparing annual budget plans (an outline of required resources for programmes) and submitting these to their respective provincial directorates and that budget allocation to their programmes were determined by their managers in the provincial directorates. Some district managers also indicated that their roles were to submit requests for the purchase of certain clinic equipment to the district finance offices, but the final authority to approve these requests rested with the district finance office.

In pilot site B a provincial health programme manager reported that her role was to submit motivations for her programmes to the provincial administration unit. This unit then submitted the motivations to procurement for approval and provision of the resources requested. The manager reported that; other than submitting the motivations, she was not involved in any way in determining budget allocations to her programmes. A finance manager at provincial level reported that the MEC and the budget committee made final decisions on budget allocations, but consultations with regions and districts were undertaken before final allocations were made, allowing regions and districts to influence allocations to their health programmes. This notion is expressed in this quote: *"I sit with all health directors to analyse requests from various institutions and assess these according to the institutions' history of expenditure and emerging needs. We allow institutions to work out their own budgets to promote transparency"* (Provincial finance manager).

Some district managers reported that the district finance units compiled budget plans from cost-centres in the districts and that they participated in drawing up allocations to cost-centres. This was reported to indicate that districts had control of their budget, because in addition to this, they were also able to shift funds between cost centres and to monitor and ensure that funds were used efficiently.

In site C provincial managers reported that their roles were to assess the regional sub-directorates' budgetary needs and using demographic data, they then divided up the budget between regions according to their population size. Once regions were allocated their budget, regional managers had the autonomy to determine allocations to their sub-programmes. This is substantiated in the expressions below:

"Once budget is allocated to the region, I decide what to allocate to my programmes" (Regional reproductive health manager).

Some managers described districts as having no role in budget allocations to their programmes:

"Authority to decide allocations to programmes and departments in lower levels lies at provincial, local authority and regional levels. Finance managers and chief directors at these levels are responsible for allocations. Districts are given budgets that are already allocated to their programmes and institutions" (Regional programme manager).

"…Districts are given funds that are already allocated to programmes" (Facility manager).

Facility managers across the pilot sites reported that their roles were to submit clinic statistics to the districts for budget planning and allocation, as well as submitting lists of clinic resource requirements to area supervisors, who in turn compile the resource requirements for their clusters of clinics and submit to their district managers.

e) Perceptions of existing budget allocation processes

The respondents were asked to indicate their perceptions of whether current practices in budget decision-making and the line of authority they had described thus far worked well or not in the course of service delivery and to explain their responses. The 'lines of authority' were explained to participants as different management levels where final decisions on budget allocations to programmes were made. The results are presented for all sites, while some variations between sites and management levels are highlighted.

The majority of the study participants (61%) responded that the budget allocation process as described did not work well for them. However, this majority was formed mainly by respondents from sites A and C. Almost all the respondents in site B reported that the process worked well, with only two respondents in the whole sample indicating that they didn't know. In relation to the lines of authority in budget decision-making, the majority (64%) of respondents felt that the process worked well. The table below shows the participants' responses:

Table 5: Budget allocation processes and lines of authority worked well

Participants' perceptions of whether the budget allocation processes worked well	**Site A**		**Site B**		**Site C**		**Total**
	Yes	4	**Yes**	9	**Yes**	1	**14**
	No	8	**No**	3	**No**	9	**20**
	DK	0	**DK**	1	**DK**	1	**2**
	Total	12		**13**		**11**	**36**
Participants' perceptions of whether the lines of authority in budget decision-making worked well	**Site A**		**Site B**		**Site C**		**Total**
	Yes	7	**Yes**	11	**Yes**	5	**23**
	No	5	**No**	2	**No**	6	**13**
	DK	0	**DK**	0	**DK**	0	**0**
	Total	**12**		**13**		**11**	**36**

Commonalities in sites A and C were that managers at all levels seemed to be in agreement that budget allocation practices did not work well in the course of service delivery. These perceptions were frequently justified by pointing out that the managers

were not involved in any defined way in budget decision-making and they didn't know what informed allocations to their programmes. This was reportedly evidenced by shortages of resources required for screening. This is despite site C having initially reported that generally all essential resources required for screening were in place.

The few participants in pilot sites A and C who felt that the process worked well, reported that this was because higher authorities provided resources when requested and overall, facilities received the necessary supplies for service provision, based on the motivations they had submitted. As such, budget allocation was perceived to be decentralised to clinics. With further probing, some explained that:

"It has been like this for a long time, no one is complaining" (Facility manager).

"We don't have to worry about budget, we just order, we don't even know what our orders cost" (Area supervisor).

Some of these respondents explained that the process worked well because budget allocation processes followed certain prescribed methods of allocation, however these methods could not be elaborated.

Almost all the participants in site B agreed that the budget allocation process worked well, explaining that they agreed because a) each level of management knew its annual allocation, b) expenditure could be compared between budget cycles and c) managers were involved in budget allocation because they sent their budget plans and motivations to their respective higher authorities.

Respondents who felt that budget allocation processes did not work well explained that:

- District managers had no authority over their own budgets.

- There was no capacity for financial management at district level, thus district managers could not effectively manage budget for their services.
- Funds that were allocated globally made it difficult to monitor expenditure for each programme.
- Budget allocations were not informed by systematically analysed programme needs, thus services were inadequately resourced.
- Lower management levels (from districts to facilities) had no training in budgeting.
- There was no transparency in budget allocations since only senior managers were involved in determining allocations.
- Finance managers who determined budget allocations to programmes were perceived to have no understanding of the needs of the programmes and services.
- Some facility managers were not aware of allocations to their facilities.
- There were no mechanisms for monitoring how funds were used.
- Bureaucracy at higher levels where funds were controlled led to delays in providing resource needs for facilities, resulting in poor services delivery in clinics.

As indicated earlier, the lines of authority in budget decision-making were perceived by the majority of participants to be working well. Curiously, explanations for these perceptions were typically: ‘No problem’ or ‘No one has complained’, indicating what could be deemed as some form of indifference, given the reasons provided above for perceptions that the budget allocation process did not work well and the prevailing sentiments that the lines of authority excluded programme implementers. On the other hand, participants who perceived that the lines of authority did not work well stated similar reasons as those listed for perceiving the budget allocation process not to be working well, including that budget allocations were highly centralised at provincial levels.

It was common in all sites for managers at provincial and facility levels to report that the lines of authority worked well, while middle level managers such as district managers and area supervisors were likely to perceive the opposite. For instance only one provincial manager indicated that the line of authority did not work well and one district manager who thought it worked well.

The respondents within and between levels of management; particularly in pilot sites A and B, commonly described the impact of budget allocation processes and the lines of authority in budget decision-making as limiting, because they were not exposed to budgeting and financial management for their services. Apart from preparing and submitting their budget plans and resource motivations to relevant authorities, they were unable to influence allocations to their directorates, programmes and services; hence they could not implement effective financial management. They explained that management at all levels should be empowered to do this through training in budget planning and financial management and be involved in budget allocations to their programmes and services. Some participants expressed themselves as follows:

"We need to be trained to budget systematically. Currently we work on our gut-feeling….we need guidelines on what services we must provide and how to budget for them" (District manager).

"There must be more involvement of programme and facility managers in budgeting. We must train them in budgeting, financial management and monitoring expenditure. It is hard for a central government to monitor, so institutions should manage and monitor their expenditure and be accountable…" (Provincial finance manager).

f) Perceptions of whether a district-based budgeting system would be supported at different management levels

Having explored participants' knowledge and perceptions of budgeting practices, this last question sought to get participants' views regarding whether a district-based budgeting system would be supported by managers at different management levels. Opinions around this were mixed, with those supporting the idea reasoning along the lines that this would be supporting what districts were supposed to do in the first place and those against often indicating that this was because districts had no capacity to manage their budgets. The table below shows responses per pilot site and management levels:

Table 6: Participants' views of a district-based budgeting system

Management level	Pilot Site A	Pilot Site B	Pilot Site C
Provincial	• It would not work at district level, there was no capacity and budgets should be linked to provinces. • This was a good idea, districts could workout local targets for their programmes and budget accordingly.	• Essential idea, district managers needed to be capacitated to work with their own budgets. • The province was moving towards that direction as districts were supposed to manage their own budget allocations to their programmes.	• Not a good idea, provincial-based budgeting was better. • Each management level should have a budgeting system, which may help reflect their needs more appropriately.
Regional			This was a good idea and the region would support it.
District	This was a good idea as districts should be able to budget for their programmes and local needs.	• It would be better placed at regional level since that's where allocations were made. • This would be highly supported as it would be essential for districts to work with their own budgets according to their needs.	*"Yes, but resources must be guaranteed otherwise the system would not work"* (District manager).
Area supervisors	It may work if it is integrated to existing management systems and all levels of management take responsibility and be accountable.	This would be a good idea because if districts controlled their budgets it would be easier for them to accommodate there programme needs more accurately.	

In concluding the key informant interviews, the respondents were asked to give any suggestion regarding how budgeting for their departments, programmes and services may be improved. Their suggestions are listed below, starting with the most frequent:

- Budget allocations should be de-centralised to service delivery levels.
- Programme managers at all levels must be involved in determining budget allocations for their programmes or services.
- All managers involved in budget allocations should be capacitated to assess programme needs to facilitate needs-based budget allocations and also in financial management.
- Records of programme performance and expenditure should be kept to inform improvements in future planning and budget allocations.
- Cervical cancer screening programmes must be prioritised and be allocated their own budget.
- Managers must be trained and encouraged to perform monitoring of programme implementation, as well as expenditure monitoring against programme performance.
- Budgets must be distributed equitably on the basis of assessed needs.

One participant expressed the last suggestion as follows:

"…..since only higher authorities allocate on the basis of what they believe are our needs, we end up with unbalanced distribution of resources and work. For instance, two clinics with a wide gap in client attendance would have the same number of staff" (Facility manager).

As indicated in the methodology, the envisaged management documents for review as part of the situational analysis did not exist in all the pilot sites and management documents that were availed did not yield any of the data envisaged for comparison to the findings of the situational analysis. This may be said to support the findings of the situational analysis, in that the lack of management records appeared to coincide with the lack of defined systems to support the implementation of screening services. Furthermore, when requested to provide management documents, some participants pointed out to tools that were provided by the CHIP, such as the management guidelines and referral notes. It must also be noted that all the management documents that were availed for review did not have any indication of reasons or a rationale for the annual budget amounts allocated to programmes, services or clinics. Neither did the motivation letters have a basis for the quantities of equipment requested.

In summary, the results of the situational analysis indicated more common experiences than not across the pilot sites. For instance, one of the common threads that emerged was in the participants' descriptions of the flow of funds from national to provincial treasuries and from the provincial treasuries to provincial departments.

Also common were the participants' different descriptions of the flow of funds from provincial departments downwards. The descriptions varied between and within pilot sites, between and within management levels across the sites and between participants at each level, indicating the absence (or unawareness) of a standard and commonly understood process for budget allocation. Furthermore, there was no apparent rationale on the basis of which programmes were allocated funds in all the sites.

It was also commonly reported that district managers did not have the authority to control their budget, all programme managers were not involved in budget planning and allocation, there was a lack of capacity; especially at district level, to plan and budget for services and there was also inadequate competence to implement effective financial management for services. Most participants also motivated for capacity-building to improve budgeting and financial management.

Provincial health managers across the sites tended to describe similar experiences of different aspects of current budgeting practices, while the same may be said for managers at lower levels. However, different experiences also existed. For instance, provincial programme managers in some sites reported that once their directorates had been allocated funds, they had the authority to decide and estimate how much to allocate to their programmes, while others felt that authority to allocate budget to their programmes was vested elsewhere.

It must be noted that where provincial managers felt that they had authority to allocate budget to their programmes, the allocation did not appear to follow any systematic or clearly defined process. These managers appeared to use their discretion to allocate budget, informed by their knowledge of their population sizes, the size of programmes or service demand statistics, although the need for systematic programme needs-assessment was also emphasised.

A frequent concern that was expressed by sub-provincial managers across sites was that budget allocation decision-making was highly centralised at provincial level, involving mainly heads of departments and finance managers who had little if any understanding of programme needs, while programme managers only submitted motivations and budget

plans. Most participants felt strongly that budget decision-making was neither transparent nor needs-based. This was attributed to the perceptions that the motivations and budget plans submitted to provincial authorities were not based on systematically assessed needs and they did not seem to influence the ultimate allocations to their programmes and services.

Some participants in the study sites argued that where allocations were based on a region's population size, this reinforced inequity in the allocations of resources, because some regions; regardless of their size, were already historically privileged and affluent, thus were likely to have sufficient resources already in place. Clinic statistics which were also used to estimate needs were perceived by some participants not to reflect reality, since in some clinics clients were turned away (before they were recorded) due to the lack of resources to provide the required services. Thus though the statistics may be low, service demand may be higher.

The situational analysis also revealed that cervical screening was not formally implemented across the pilot sites and some facility managers were unaware of any cervical screening programme except the CHIP in which they were participants. While a few provincial programme managers would report that cervical cancer screening was allocated a specific budget, lower level managers appeared not to be aware of such allocations.

Lastly, other common experiences included the inability of participants to estimate any specific budget for cervical screening, because global budget allocations were provided for clusters of services. This was supported by the management documents reviewed, which at higher levels showed global allocations to services and at lower levels there were typically order forms or motivation letters for resources required by clinics.

3.2: Phase 2: Processes required for implementing a cervical cancer screening programme

This phase of the study explored the second objective to identify and document process requirements for implementing cervical screening programmes. Documents that were developed during the early stages of implementing the CHIP project were used to outline various essential process requirements as well as the steps that a manager would follow to define the resources needed for cervical screening. These are listed in four broad categories in the methodology in page 42 and the results that follow in phases 2 and 3 of this study demonstrate the detailed and logically arranged process requirements, how these were compiled into an Excel spreadsheet and subsequently converted into a computer-based budget program. This phase of the study presents the results of the first two broad categories, i.e., target setting and identifying process requirements and in phase 3 the results address the last two categories, i.e., quantifying resources and calculating costs.

a. Target-setting to calculate annual screening coverage for districts or facilities to achieve the 70% national target in ten years

The CHIP demonstrated that target populations should inform not only budget estimates, but also planning activities, to facilitate needs-based decision-making. Using census data, health managers can calculate their annual screening target population for their area of jurisdiction, be it a province, region, district, local authority or local area. A method for calculating target populations manually was developed during the early implementation of the CHIP project and this was adapted for this study by the researcher, adding explanatory notes to various elements of the method as shown in the figure below:

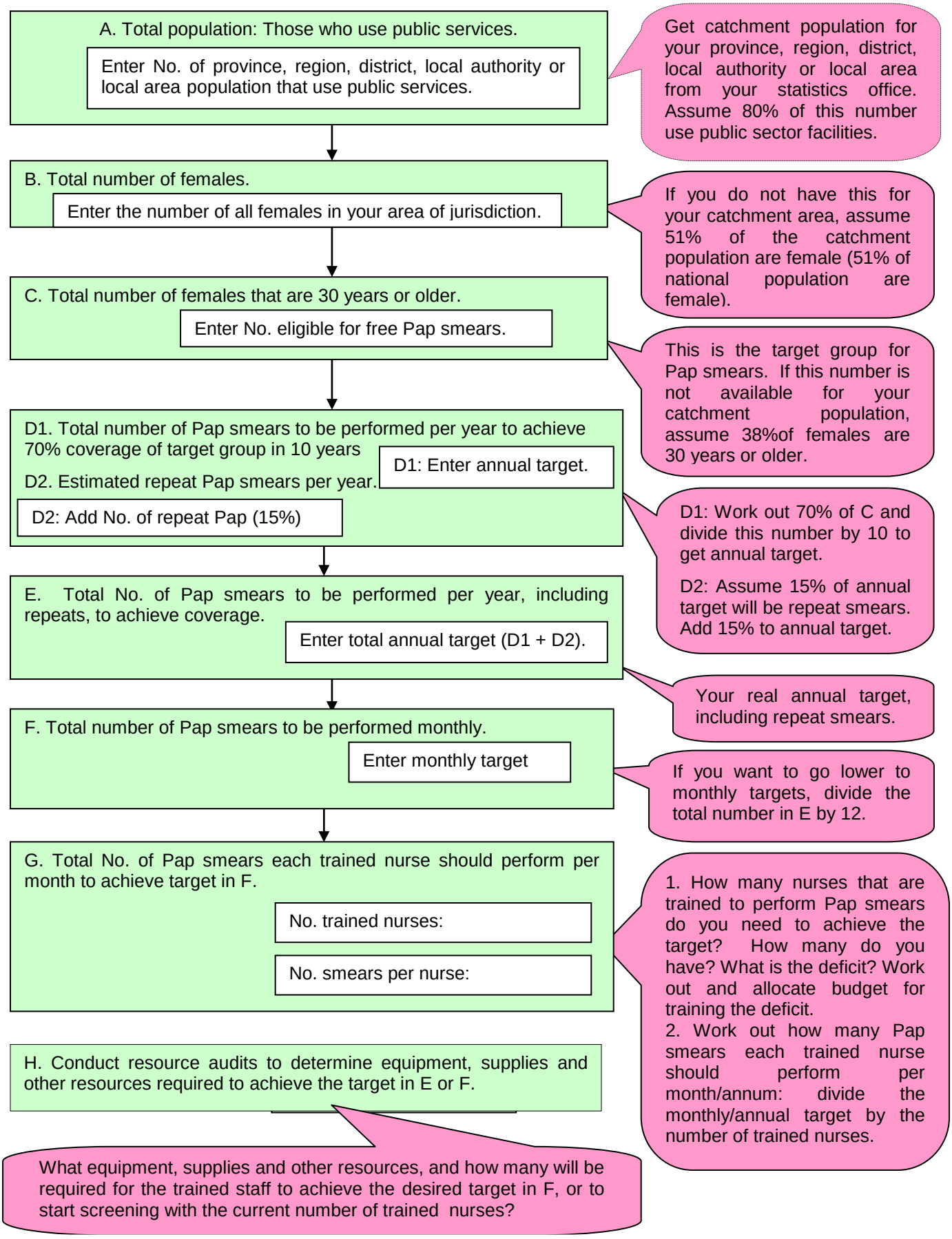


Figure 2: Target calculation method*

*Figure 2 was adopted from unpublished CHIP reports developed in the early stages of the project in 2002.

The target setting method as displayed above suggests that once targets have been calculated, managers will then conduct staff and equipment audits, to determine how much resources are required to reach the set target. The CHIP had provided tools for conducting staff and equipment audits, thus these are not included in this study. However, illustrative staff and equipment audits are included in Appendix F, which provides the rationale and background information to the budget program, as well as budgeting principles that are essential for consideration when using the program.

b. Detailed process requirements and resources required to implement cervical screening programme

The process requirements for consideration in implementing cervical screening programmes and tools identified and compiled from the CHIP documents were organised in a manner that outlined cervical screening components, their related activities and resources required for screening services at PHC level. To ensure that the identified process requirements were as thorough as possible and would facilitate effective programme needs-analysis, the resources identified for each programme component activity were also broken down into their relevant characteristics where necessary. For instance, equipment were characterised into capital and consumable items and resources for staff training were broken into those for practical and theoretical training, as well as training for different staff categories. The table below depicts the organised process requirements:

Table 7: Process requirements for cervical screening

<table>
<tr><th>Screening Component</th><th>Activity</th><th colspan="2">Resources for screening services at PHC level</th></tr>
<tr><td rowspan="10">Equipment and supplies</td><td rowspan="10">Equipment audit to determine how much resources are required for screening as informed by the targets as calculated.</td><td>Capital Items</td><td>Consumable Items</td></tr>
<tr><td>Examination Couch</td><td>Aylesbury spatula</td></tr>
<tr><td>Examination light</td><td>Glass slides</td></tr>
<tr><td>Steriliser (boiler or autoclave)</td><td>Slide markers</td></tr>
<tr><td>Vaginal speculum</td><td>Slide Mailers</td></tr>
<tr><td>Swab holding forceps</td><td>Gloves</td></tr>
<tr><td rowspan="3">Container for soiled instruments</td><td>Decontamination fluid</td></tr>
<tr><td>Fixatives</td></tr>
<tr><td>Linen savers</td></tr>
<tr><td rowspan="2">Human Resources</td><td>Staff Audit to determine how many trained nurses are required for screening to reach the target as calculated.</td><td colspan="2">Audit forms

Audit staff/consultant</td></tr>
<tr><td>Staff training</td><td colspan="2">Trainers</td></tr>
<tr><td rowspan="8">Professional Staff</td><td rowspan="8">Practical/Clinical Training
• Doctors (Colposcopy)
• Professional Nurses (Screening)
Theoretical & Systems Training
• Doctors
• Professional Nurses
NB: Consider number of trainees and training workshops for appropriate resource allocation</td><td colspan="2">Venues</td></tr>
<tr><td colspan="2">Accommodation</td></tr>
<tr><td colspan="2">Transport</td></tr>
<tr><td colspan="2">Training material</td></tr>
<tr><td colspan="2">Refreshments</td></tr>
<tr><td colspan="2">Overheads, etc.</td></tr>
<tr><td rowspan="6">Support Staff</td><td rowspan="6">Theoretical & Systems Awareness Training
• Counsellors/Peer Educators/Community Development Workers
• Health Promoters (Client Follow up)
• Administrative Staff (records/forms)
• Supervisors for monitoring and evaluation.
NB: Consider number of trainees and training workshops for</td><td colspan="2">Venues</td></tr>
<tr><td colspan="2">Accommodation</td></tr>
<tr><td colspan="2">Transport</td></tr>
<tr><td colspan="2">Training material</td></tr>
<tr><td colspan="2">Refreshments</td></tr>
<tr><td colspan="2">Overheads, etc.</td></tr>
</table>

Screening Component	Activity	Resources for screening services at PHC level
	appropriate resource allocation	
Systems for programme functioning	Health Information System (HIS) for records and reports of screening performance	Pap Registers
		Collation Sheets
	Client Follow-up of women who have been screened	Follow-up Cards
	Standardised Cytology Reporting (completing cytology forms)	Cytology Report Forms (sometimes Lab provided)
	Referral of women with HSIL to services for the management of HSIL lesions (colposcopy)	Client Referral Letters
	Feedback from colposcopy services	Feedback Letter
	Screening guidelines (Developed by the CHIP)	Guidelines
Transport and Communication for referral services	Courier service for collecting and delivering Pap smear specimen between facilities and laboratories.	Vehicles
		Drivers
	Communication Systems	Fax, landline phone, email, sms
	Client follow-up transport to follow up women at home.	Vehicles
		Drivers
Community Information and Education	Community educational campaigns	Posters
		Pamphlets
		Advertisements
		Radio Slots
	Peer Education	Venues
	• Trainees per Work shop • Training Workshops • Venue cost per Workshop • Trainer per Workshop • Trainer travel and accommodation • Refreshments per Workshop • Training manuals	Accommodation
		Transport
		Training material
		Refreshments
		Overheads, etc.
Laboratory Services	Reading and reporting on Pap smears	Lab costs
		Lab personnel (where applicable)
		Lab equipment
Services for the Treatment of Precursor Lesions (HSIL)	Colposcopy and Treatment	Colposcopy Machines or one of these: Letz, Cryotherapy, Cone.
Services for the Management of Cancer	Client advice (if the need arise)	Treatment facilities
		Palliative care facilities
		Counselling centres/services

3.3. Phase 3: Development of the budget planning and estimation program

This phase of the study presents the results of the third objective to use the process requirements identified in phase 2 to develop a budget planning and estimation program for cervical screening services. As indicated earlier, the results of phase 3 addresses the last two broad categories of process requirements and steps that a manager would follow to identify the resources needed to implement screening services, i.e., quantifying resources and calculating costs.

c. Quantifying resources required to implement cervical screening services

The first stage of developing the budget planning and estimation program was to enter the process requirements identified in phase 2 into an Excel spreadsheet. The Excel application was used such that pre-determined formulae could be embedded into relevant cells to allow for the calculation of quantities of the resources and activities identified and their related costs. The Excel spreadsheet is a prototype that was converted into the computer-based budget program and it displays:

- Columns for screening components identified in phase 2 and their related activities and resources.
- A column to enter required quantities of each of the identified resources as informed by resource audits.
- A column to enter resource costs per item.
- Calculations of budget sub-total costs per resource item (with embedded pre-determined formulae).

- Calculations of budget sub-totals for screening programme components (with embedded pre-determined formulae).
- Calculation of the grand total once all calculations have been completed (with embedded pre-determined formulae).

The table below depicts selected components of the Excel prototype of the budget planning and estimation program and the full spreadsheet is attached as Appendix C:

Table 8: Excel prototype of the budget planning and estimation program

No.	Screening Component	Activity	Resources for screening services at PHC level	Quantity	Unit Cost	Sub-Total per Item
1.	Equipment and supplies	Equipment audit to determine how much resources are required for screening as informed by the calculated targets.	**Capital Items**			
			Examination Couch	0	0	0
			Examination light	0	0	0
			Steriliser (boiler or autoclave)	0	0	0
			Vaginal speculum	0	0	0
			Swab holding forceps	0	0	0
			Container for soiled instruments	0	0	0
			Consumable Items	0	0	0
			Aylesbury spatula	0	0	0
			Glass slides	0	0	0
			Slide markers	0	0	0
			Slide Mailers	0	0	0
			Gloves	0	0	0
			Decontamination fluid	0	0	0
			Fixatives	0	0	0
			Linen savers	0	0	0
Sub-Total Cost for Equipment and Supplies				**0**	**0**	**0**
2.	Human Resources	Staff Audit to determine how many trained nurses are required for screening to reach the target as calculated.	Audit forms	0	0	0
			Audit staff/consultant	0	0	0
		Staff training	Trainers	0	0	0

	2.1. Professional Staff	**Practical/Clinical Training** • Doctors (Colposcopy) • Professional Nurses (Screening) **Theoretical & Systems Training** • Doctors • Professional Nurses ***NB: Consider number of trainees and training workshops for appropriate resource allocation***	Venues	0	0	0
			Accommodation	0	0	0
			Transport	0	0	0
			Training material	0	0	0
			Refreshments	0	0	0
			Overheads, etc.	0	0	0
	2.2. Support Staff	**Theoretical & Systems Awareness Training** • Counsellors/Peer Educators/Community Development Workers • Health Promoters (Client Follow up) • Administrative Staff (records/forms) • Supervisors for monitoring and evaluation. ***NB: Consider number of trainees and training workshops for appropriate resource allocation***	Venues	0	0	0
			Accommodation	0	0	0
			Transport	0	0	0
			Training material	0	0	0
			Refreshments	0	0	0
			Overheads, etc.	0	0	0
Sub-Total for Human Resources				**0**	**0**	**0**

d. Calculating costs and allocating budget to resources for implementing cervical screening.

The excel spreadsheet above was converted into a computerised budget planning and estimation program. In the converted form, the program incorporated some guides that seek to assist the user to get the best out of it. The guides include the following:

1. **Steps on how to set screening targets:** A formula based on the target setting method presented earlier was embedded as a first step to using the program. This enables users to input their population data and follow the process described in the flow diagram (figure 2), so that calculations for annual and monthly screening targets could be made.
2. **Budget Program Rationale and Background Information:** Also embedded in the program is a document outlining the following:
    - The rationale behind the development of the program.
    - What needs to be done before using the budget program.
    - Information relating to assessing needs and linking the needs to resources, developing planning norms, identifying priorities and their resource implications, performing some basic costing exercises, considering start-up, long-term and recurrent costs, as well as stakeholder engagement. The user is directed to click on a link to this document on launching the program.
3. **Budget planning and estimation program: user guide (Appendix G):** This document was developed by the researcher following the development of the program. Thus the document is separate from the program and it provides a detailed description of the capabilities of the program, instructions on how to install

and use it and step-by-step guidance on navigating the program, which include snapshots of each component of the program.

The converted program includes all the components, activities and resources as depicted in table 8 above and in the full Excel spreadsheet in appendix C. The program is depicted with explanatory notes in the user guide and is also provided with this report electronically on CD. Basically, what the program does following installation is:

a. It prompts the user to open and read the program rational document (or 'before using this program document'). If the user does not open the document within a minute, the program proceeds to the next calculation screens. However, the document can be saved for later use.
b. The next calculation screens involve the steps where the user is required to enter information for the program to calculate annual and monthly screening targets.
c. Then the program takes the user to screens for each component of the screening program, where the user must input under each component resource quantities and their unit costs and then the program calculates sub-total amounts for each resource.
d. Once resource input has been made for each component, the program calculates a sub-total for that component.
e. The program takes the user through all the components of a screening program (as listed in appendix C) to input the required resources, until the last component where the program then calculates a grand total for the screening programme.

The steps below demonstrate how the program works, with snapshots of each step:

Step 1: Launching and installing the program on CD and online

When the CD is inserted in a computer or opened online, the user will first be required to install the program by clicking ‘install’ on the screen below and then ‘run’ on a screen that would follow after clicking install.

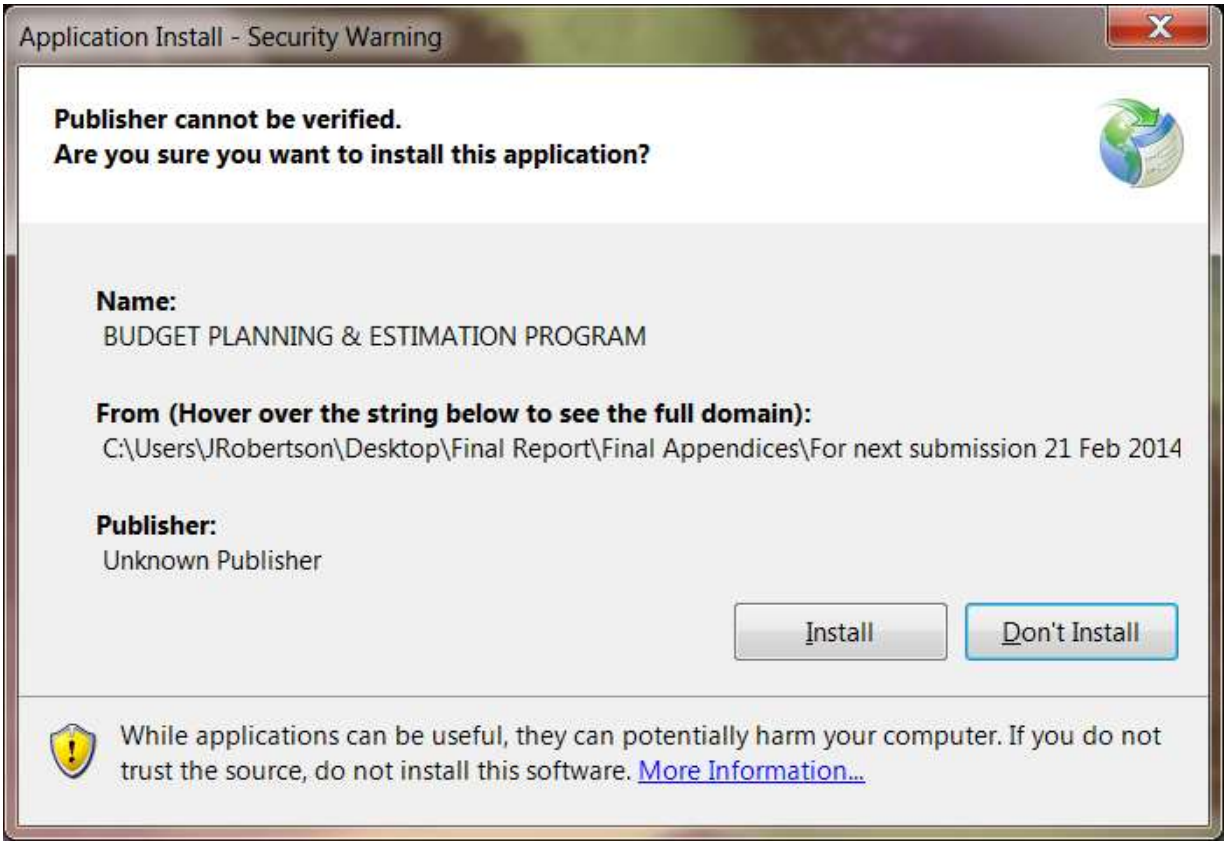


Figure 3: Budget program installation

Once the program is installed, it will launch automatically showing the screen in figure 4 below if a CD was used to install or the screen in figure 5 if the program was opened online.



Figure 4: First screen of the program on disk launch



Figure 5: First screen of the program online launch

The user may click the link at the top of figure 4 to read the background information document referred to earlier, before continuing to use the program, otherwise the

program will proceed to the next step. Online the user can open the background information document in step 1 in figure 5, the user guide (program installation) in step 2 and then go to step 3 to open the program.

Step 2: Calculating screening targets

When the program proceeds from the screens above, it takes the user to the target calculation screens shown in figures 6, 7, and 8 below:

- In the first screen in figure 6, the users will be asked if they know the annual target and if the answer is yes, then they will be asked to input the annual target in figure 7 and click 'next' for the program to proceed to the calculation of resource costs as described above (page 83, c.).
- If the answer is no, the users will be required to input the total population for their area of jurisdiction in figure 8, click 'calculate' and the program will calculate from the total population down to the annual and monthly screening target as shown in figure 8. The target setting flow chart described earlier (figure 2) is embedded in the program, thus the target is calculated to eligible women and repeat smears.



Figure 6: Target calculation: annual target given (Yes): The screen below will appear to enter the given target.

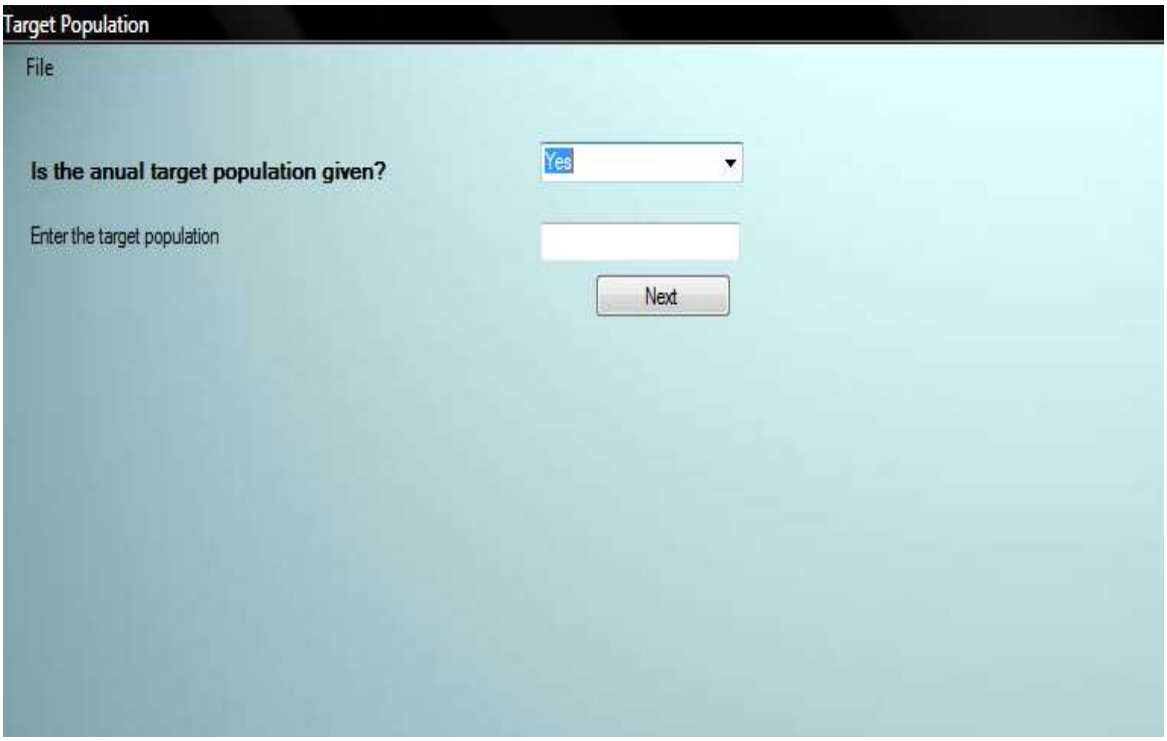


Figure 7: Target calculation: entering annual target: Then click next to proceeds to the calculation

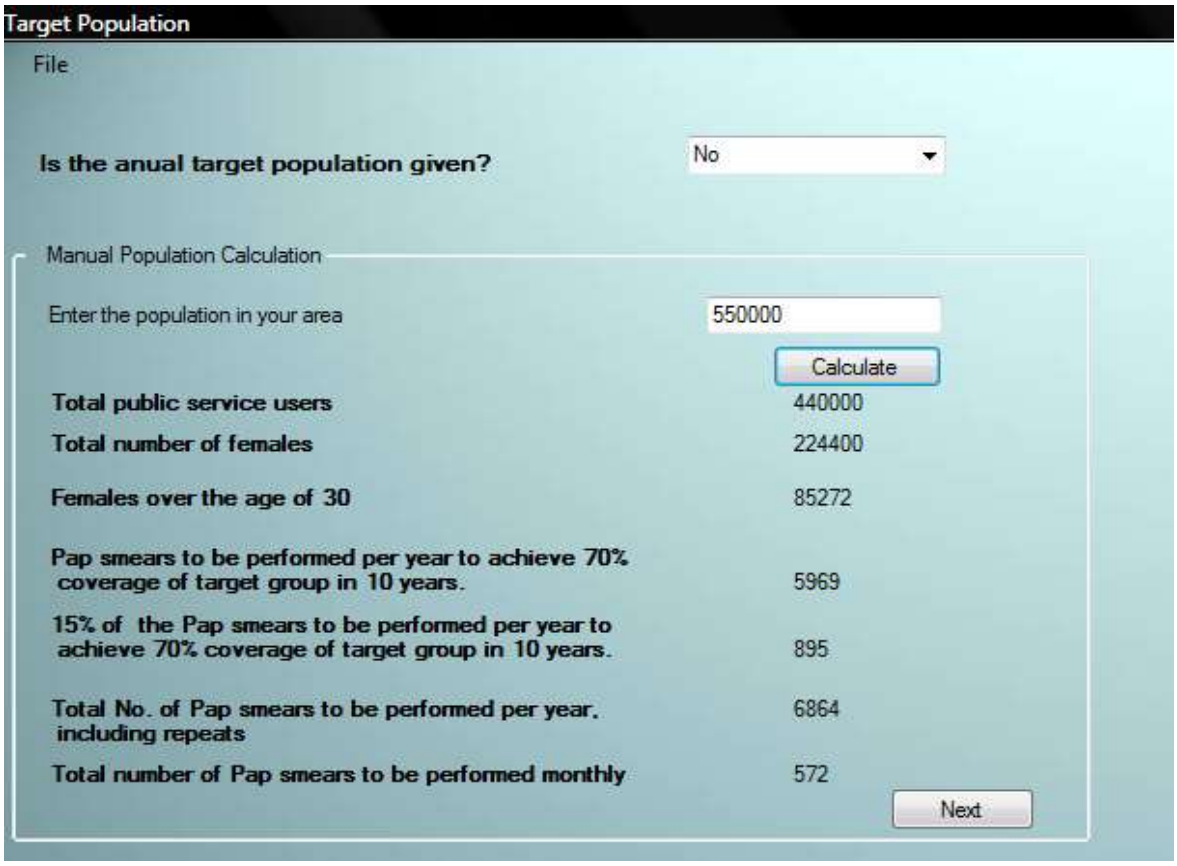


Figure 8: Target calculation: annual target not given: Enter total population and click 'calculate', the program will then calculate to eligible annual and monthly targets.

As indicated earlier, once the annual target has been determined, staff and equipment audits should be conducted to establish the quantities of the resources required to reach the desired target. Therefore, to continue using the program, resource quantities and prices per item should be at hand, to input into the program.

Step 3: Calculating resource costs

In this step the program takes the users through all components of the screening program to calculate resource costs for each component, as shown in the figures below. Where the users do not need to enter quantities or costs, they will need to enter a zero (0) in the relevant cells, as the program will not calculate when cells are left empty.

a. Calculating costs for equipment and supplies

The users will be required to enter resource quantities and unit costs for each of the capital and consumable equipment, then click 'calculate' for both sets of equipment (one after another) and the program will calculate sub-total costs for each resource and each category of the resources (capital and consumables) and then the total for the component of 'equipment and supplies'.



Figure 9: Calculating Costs for equipment and supplies



Figure 10: Calculating costs for support systems: *Administration forms*



Figure 11: Calculating costs for support systems: *Transport and client liaison*

c. Calculating costs for provider training

In this component, once the number of providers to be trained is entered in the relevant cell, the program calculates the number of training sessions, based on 15 as a maximum number of participants per training session.

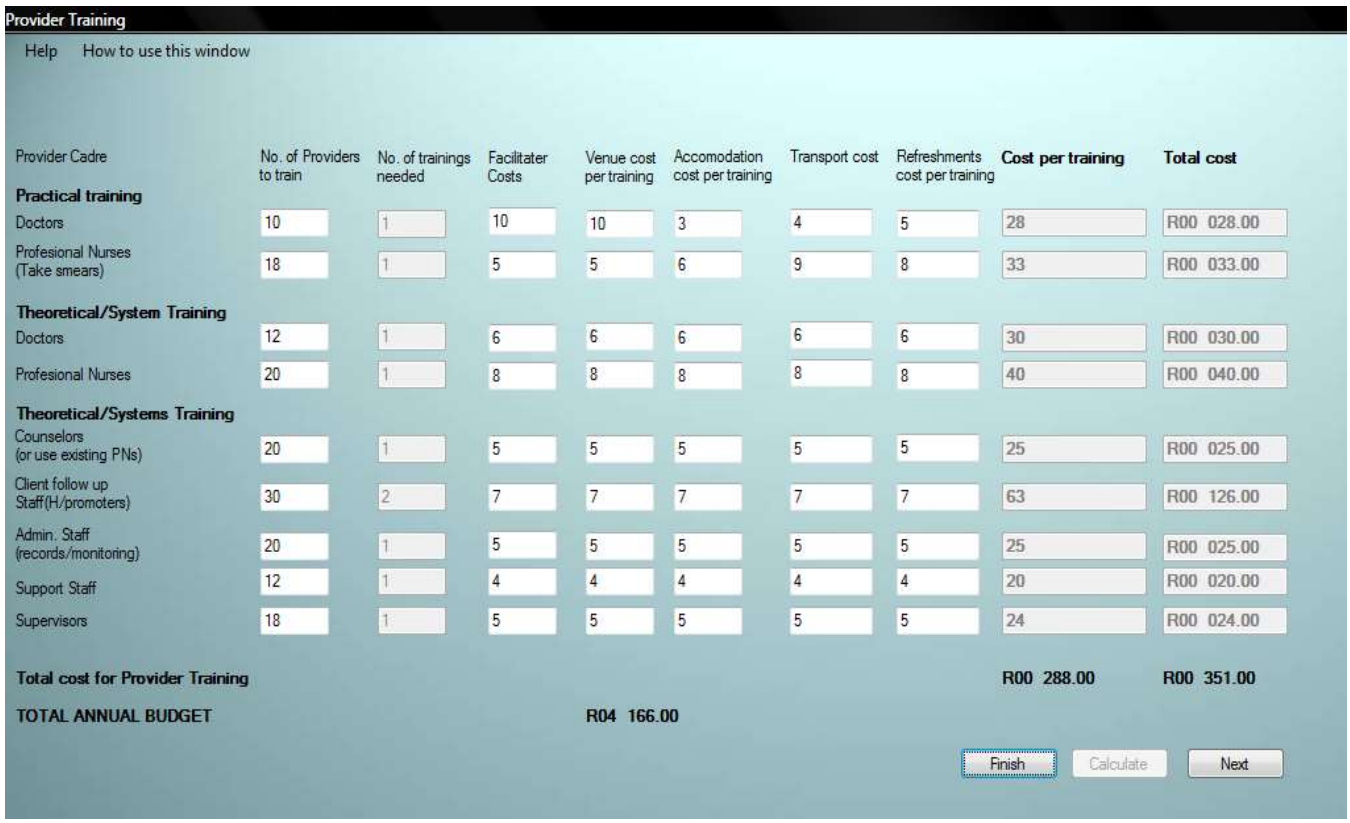


Figure 12: Calculating costs for provider training

At this point, it may not be necessary for some managers to proceed to the next steps to estimate budget for services that are accounted for at higher levels (e.g., laboratory services, awareness campaigns, treatment service, etc.), hence the program provides an option to **finish** budget calculations here. However, users may proceed to calculate budget at higher levels if necessary. Clicking 'calculate' will give the user the estimated total annual budget for resources calculated thus far. Then the user may exit the program by clicking 'finish'. To continue budget calculations at higher levels, the user must click

'next' after clicking 'calculate' to proceed to the higher level screening components below.

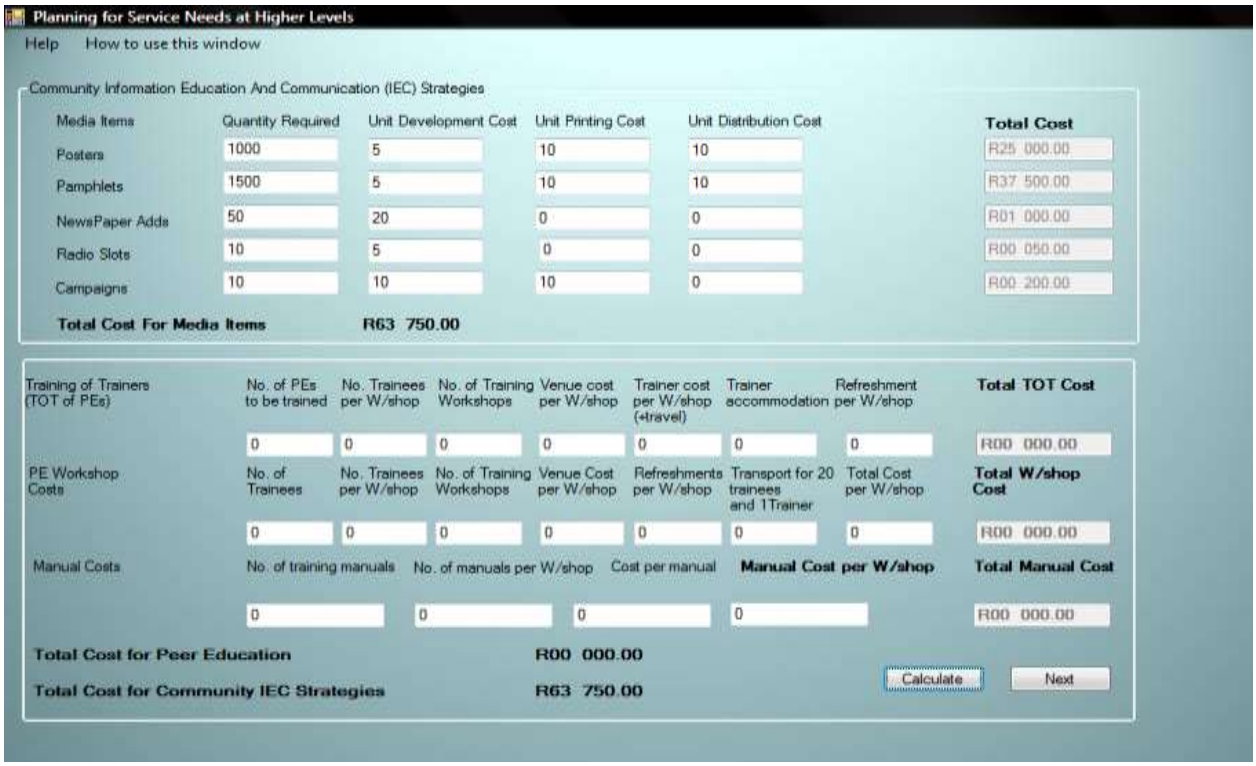


Figure 13: Calculating costs for awareness campaigns

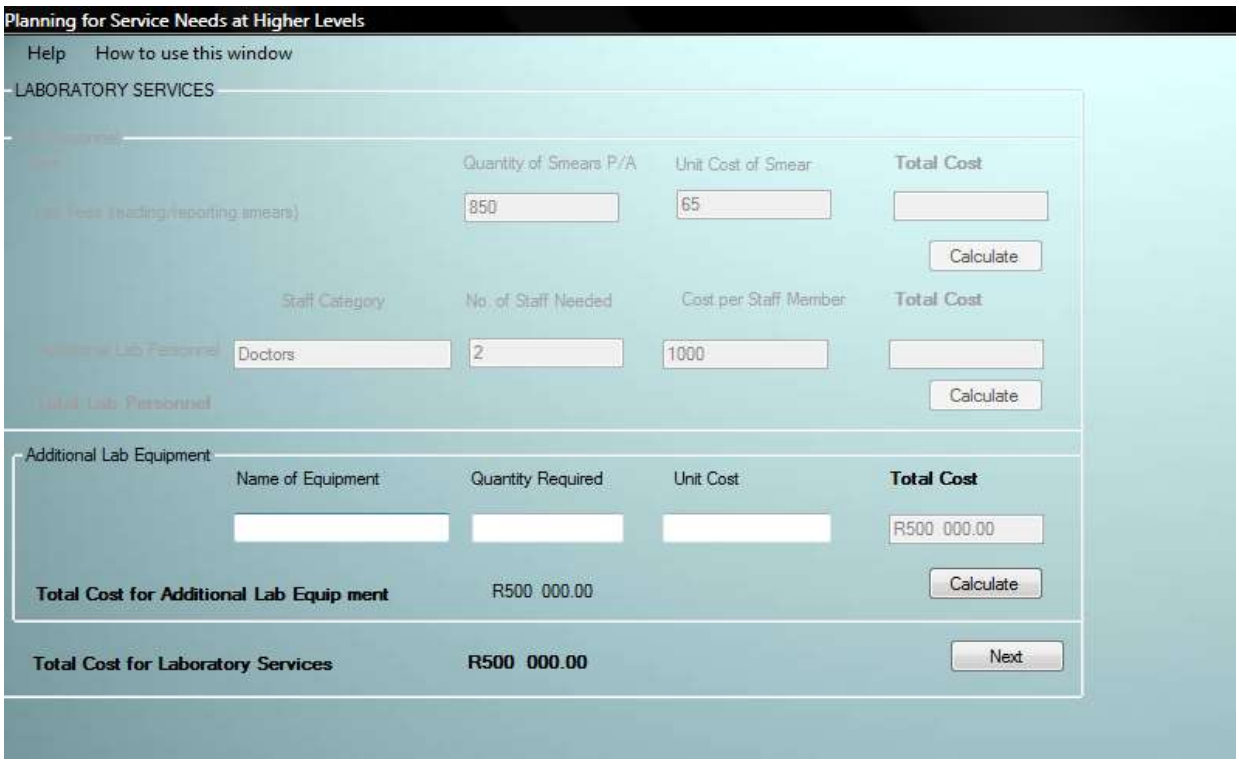


Figure 14: Calculating costs for laboratory services

In figure 14, the program will clear a cell once the category of 'additional lab personnel' is calculated, allowing for more personnel categories to be entered and calculated. Similarly, the cells will clear up once the names for 'additional lab equipment have been entered and calculated, allowing for estimates for more equipment to be entered and calculated.

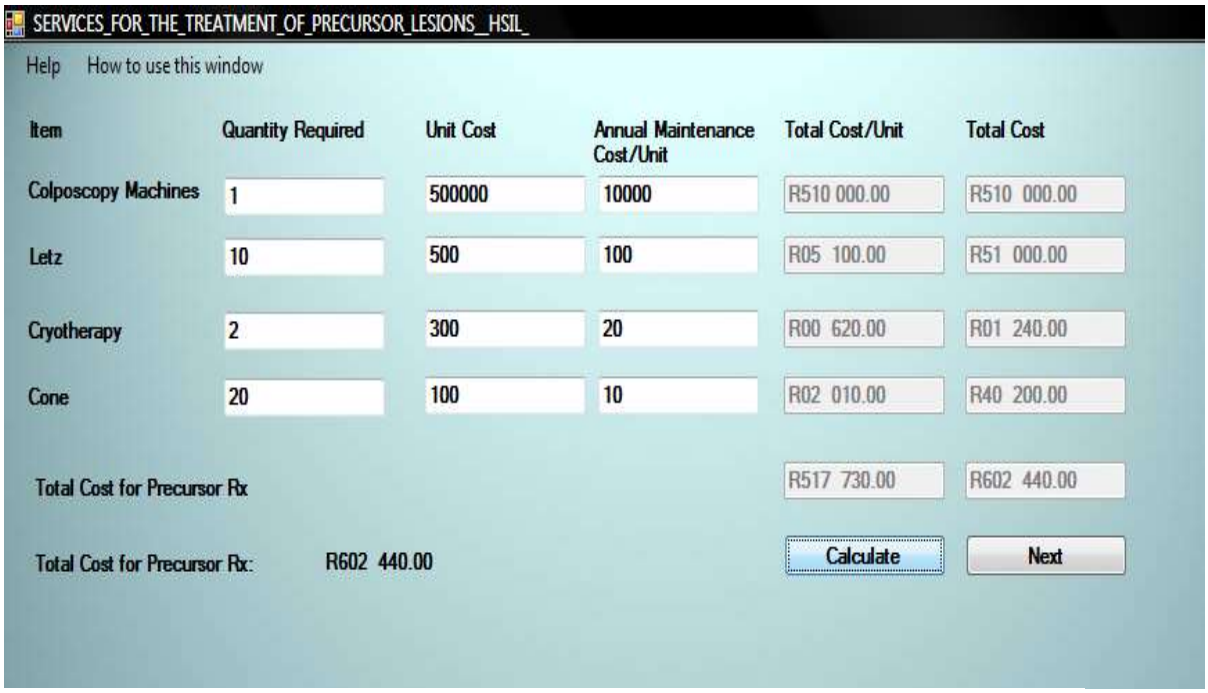


Figure 15: Calculating costs for the treatment of precursor lesions

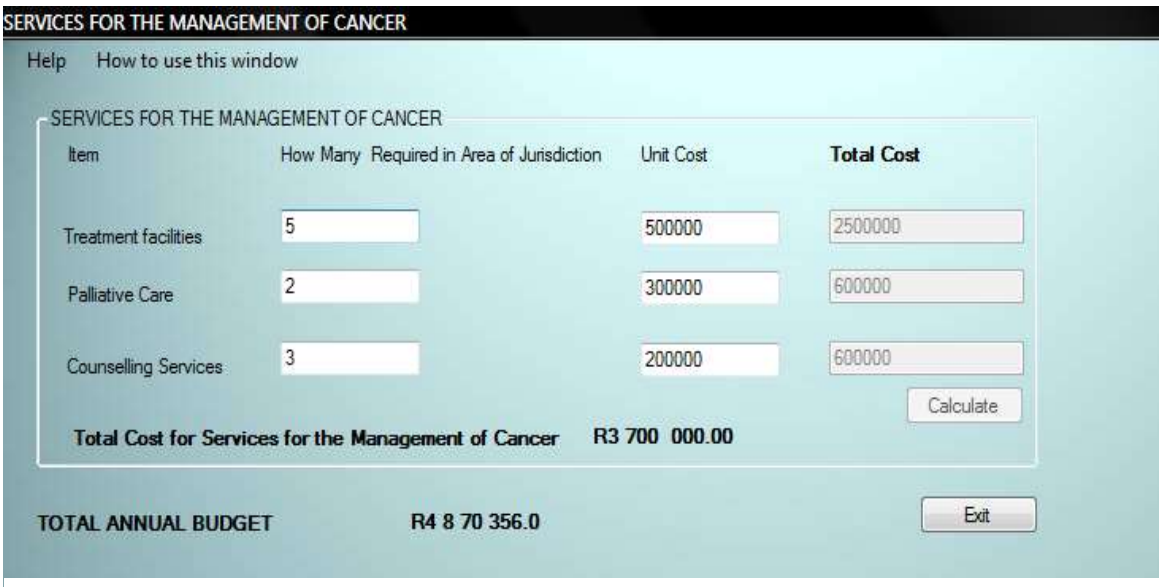


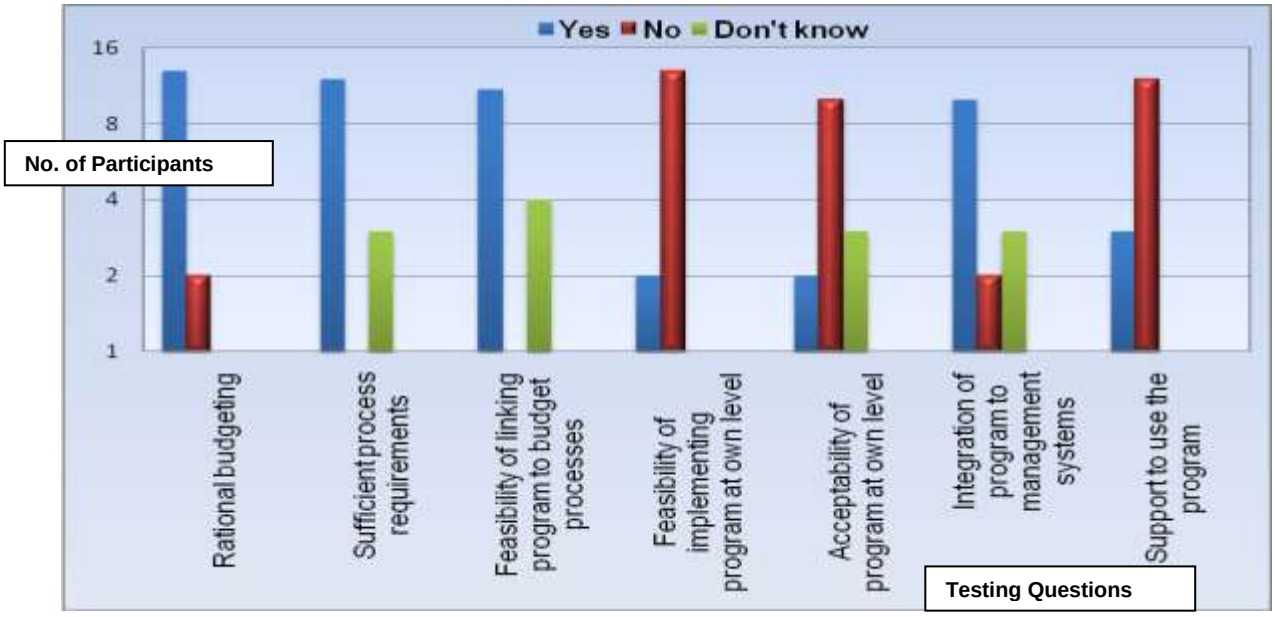
Figure 16: Calculating costs for services for the management of cervical cancer

This is the end of the budget estimation program, where the overall total annual budget for all components calculated so far is displayed. It is worth noting at this point that:

- The user will need to print each screen in the course of all the calculation steps, as the programme does not generate calculation reports.
- Each screen of the programme component has a 'Help' and 'How to use this window' button, where users can get information and tips pertaining to available options for using the window.

3.4. Phase 4: Testing the budget planning and estimation program

This section presents the participants' responses to the seven questions that they were asked to respond to after testing the budget program. It is worth noting here that almost half (6) of the key informants who participated in the testing of the budget program were not health managers, but were from the public sector and nine (9) were involved in PHC services. Apart from one question relating to whether the program provided sufficient process requirements for budgeting and planning for cervical screening, all the other questions related to budgeting in general. The following graph provides a summary of the responses to each question by participants in all the pilot sites:



Graph 4: Summary of responses to the budget program testing questions

Key informants also provided justification for their responses to each question and these are presented below:

1. **The usefulness of the budget program in helping health managers to undertake rational budgeting (where allocations are informed by local needs)**

The majority (13) of the participants felt that the budget program would assist them to undertake rational budgeting (or budget allocation). This quote sums up some of the participants' feelings:

"This program or this kind of thinking must inform budget planning and allocation. As it is, we don't know what informs the budget we get and it is always not enough, but sometimes money is not spent and it is sent back to Treasury" (District assistant manager).

The two respondents who said the budget program would not help said this in the context that they were not involved in budget allocations, thus the program would not make any difference to them as they would not be required to use it. A summary of responses from those who felt that the budget program would facilitate rational budgeting is as follows:

- Target setting and estimating budget allocations on the basis of needs that were systematically assessed was seen to reflect good judgment. Programme managers were said to be experts in their programmes and that they were in the right place to inform rational budget allocations, thus their involvement in this process was deemed crucial. It was indicated that managers could even get quotations for their budget items and provide budget estimates to higher levels and this could be supported by evidence calculated through the budget program. The following quotes reflect some of the respondents' views:

"*After using this program I can say there is no doubt about that, the question is if finance managers at district will accept it, because they already have their own rigid systems that they don't want to change"* (PHC facility manager).

"Yes, I think every project manager who is given a budget to manage must know what they are doing with the money and this program can help them manage their money better, which means they will want to see what they are getting from the money they spent on projects" (Procurement manager).

- The budget program facilitated more accurate budget estimations and a fair distribution of resources, because it allowed for budget estimations to be informed by a bottom-up process that begins with the assessment of needs at service delivery level. More importantly, the needs could be explained through hard evidence, such as eligible target populations, resource audit findings and analytically outlined programme activities with their resource requirements. Information on eligible target populations, resource audits and programme activities could lessen currently experience situations, where in some instances there were provisions of too much of resources that were not necessarily in demand and too little of those that were in demand at some service delivery points.
- Some respondents felt that if the budget program was adopted and used at levels where budget decisions were made, this would save government a lot of money, because the risks of over or under-allocations and wastage would be minimised, as the budget program facilitated a realistic and more needs-based definition of resource needs. It also was stated that the mere fact that the foundation for needs

in the budget program is informed by eligible target populations, audits and programme components, means that there would be minimal room for uneven distribution of resources.

- Some participants stated that the budget program made them realise that service delivery was probably fraught with challenges because budget allocations for service delivery was not informed by any rational process. Others felt that the budget program demonstrated how things should be done and that existing budget planning processes appeared to be like shooting in the dark, where one could hit or miss.

The respondents also indicated that the budget program would facilitate rational budgeting for other health programmes, thus all health managers should be exposed to the program as they also needed the level of planning and budgeting it provided.

2. The usefulness of the budget program in helping managers to define processes and resources required for implementing cervical screening programmes

The majority of respondents (12) felt that the budget program provided sufficient process requirements for cervical cancer screening programmes, with 3 respondents indicating that they don't know, because they were not familiar with components of cervical cancer screening programmes. However, almost all the respondents indicated that breaking down a programme into its process components is the best idea that should be applied to all programmes to inform budgeting. Other emerging themes in response to this question included that:

- The process requirements for cervical cancer screening listed in the budget

program were some of the most problematic in terms of shortages and the functionality of systems at service delivery level. Therefore, planning ahead for these would be instrumental, not only in providing services effectively, but also in ensuring that these process requirements are budgeted for to minimise shortages.

- Equipment supplies were the most mentioned in terms of shortages due to planning that did not consider programme process requirements. The budget program was therefore strongly supported in terms of its ability to help managers to assess the process requirements of their programmes and motivate accordingly, as reflected in these quotes:

"It can definitely help me plan and motivate, even if they don't accept it, but this is a way of showing what is required beyond using previous statistics only" (Community Liaison Officer).

"One thing I have learnt from this program is that it is a good planning tool. Even if I don't allocate budget , I can still use it to estimate our facility needs and when we run out of equipment or medicines, I can show why" (Deputy PHC facility manager).

Feelings of despondency were also expressed as shown in the next quote, where some participants felt that the budget program would be of no use because the culture of random budget allocations was deeply rooted at management levels where budget decisions were made without considering the process needs of programmes:

"…but who is going to use something like this? No one goes through this process before they give budget to us. It is already decided when they give budget, but I'm not sure on the basis of what" (Deputy PHC facility manager).

3. Feasibility of linking the budget program to existing budget planning and estimation processes

Again, the majority of the respondents (11) believed that it would be feasible to link the budget program to existing budget planning processes and 4 indicated that they didn't know because they were not sure how budget planning was done.

Participants who believed it would be feasible to link the budget program to existing budgeting processes indicated that this is because:

- The budget program showed what seemed to be natural steps in any planning process that sought to ensure efficient use of resources. Thus, the link should be feasible because all that was required was to start analysing what was planned for, which is the logic that the budget program proposed.
- The budget program was not introducing any novel changes, but a way of enhancing planning by replacing unsystematic budget estimations by estimations that are based on actual evidence of what is required by health programmes to effectively respond to defined target populations.
- The perceived applicability of the budget program to other health programmes. Some participants commented that exposure to the budget program through the testing exercise gave them ideas on future planning for their services, though they were not necessarily involved in cervical screening. This included that, since they were conscious of issues such as target setting, resource audits and analysing programme components, they would use this information in their future planning exercises where possible. One manager expressed this as follows:

"Well, I don't know about cervical cancer screening, but for me the principle of listing

everything that must be done and cost it is a good one, because you avoid many problems like under-estimating your expenditure, this happens a lot, people go in the red before the end of the financial year" (Procurement manager).

A PHC manager explained how she could integrate ideas from the budget program in the quote below:

"…Actually, as a facility manager, this can help me plan for all my programmes, who knows, if I show my plan to the right person, they might pay attention, because my plan will be based on facts" (PHC facility manager).

However, the key informants also pointed out that the challenge in linking the budget program to existing budget planning processes might arise because planning processes such as target setting, resource audits, the analysis of programme resource requirements and acquiring prices for line items might be seen as long-drawn. This could lead implementers to opt to stick to existing easier and quicker; though unsystematic, methods of budget allocation such as using overall population sizes to estimate programme needs.

4. **Ease of integrating the budget program into other management systems in different levels of jurisdiction**

Most participants (11) believed that the budget program could be easily integrated into existing management systems, while three said they didn't know and two believed it couldn't. The respondents who felt that the budget program could not be integrated into existing management systems indicated that this is because they were not involved in budgeting.

Managers who believed that the budget program could be integrated felt that; although

they were not involved in actual budget planning processes, the program could be adopted at their levels as one of their planning and management tools. For instance they could proactively use the program to inform their motivations or budget plans, or in the least, to provide evidence of under or over allocations where necessary. Some provincial managers felt that it was in their discretion to use the program to inform allocations to their sub-programmes, thus from this perspective, the program could be easily integrated to their management systems.

The participants also indicated that at the appropriate budget decision-making level, the budget program should be easy to integrate into existing management systems, mainly because it did not add or take away anything, but all it required was a paradigm shift in budget planning, which only meant doing things differently or doing things the right way. Some of the responses are captured in the quotes below:

"Yes, that would be easy once you've done the audits and got the quotes and all the other information that the program needs" (District assistant finance manager).

"…Actually, this program can improve our systems because they don't seem to be based on needs, but simply estimated according to someone's perception of a programme" (Provincial manager).

5. Feasibility of implementing the budget program at various levels of jurisdiction

The majority of the key informants (13) felt that it would not be feasible to implement the budget planning and estimation program at their level of jurisdiction, while two said it would. The few who said that it would be feasible to implement the budget program at their level indicated different perspectives to support their responses. One indicated some

level of control in her area of jurisdiction as expressed below:

"Yes, my directorate is given a budget and I can work out how to use it better, based on the needs of each of my programmes" (Provincial manager).

The second manager saw the budget program as an opportunity to make motivations that were supported by evidence.

The participants who felt that it would not be feasible to implement the budget program at their levels of jurisdiction explained that this is because they did not make budget decisions. However, they also pointed out that even at the levels where budget decisions were made, the perceived long-drawn planning steps (target setting, resource audits, etc.) suggested by the budget program might hinder implementation as quicker allocation methods might be preferred. Some of the participants' views on the feasibility of implementing the program are best captured in the quotes below:

"Not really, I manage the finances after they have been allocated to programmes, but this idea is worth motivating at higher levels" (Finance manager).

"No, this kind of program must be used where decisions to allocate budget are made. At my level, I can only use it to show why our budget is not enough" (District manager).

"No, but like I said, this program gives me a way of showing how we are under-funded. You see, when equipment run out, they say we waste them, because they don't consider everything we need when they allocate budget to our facilities" (Facility manager).

"I think what this thing does is it makes you wonder why people have to guesstimate budget when you can estimate better using available information, like the population of women to be screened every year. So, I can't implement it at my level, but it can open my

eyes because I can work out the needs of the clinic" (Facility manager).

"No, but having tested this program, I will be able to ask the right questions about programmes" (District assistant finance manager).

6. Potential acceptability of the budget program at various levels of jurisdiction

Again, the majority (11) of the respondents felt that the budget program would not be acceptable at their level of jurisdiction, mainly because they were not involved in budget planning processes. Two said that they didn't know and another two said that it would be acceptable, mainly because they could use the budget program to plan allocations to programmes in their directorates.

In addition to their non-involvement in budget planning, participants who felt that the budget program would not be acceptable also indicated that generally the public service has existing systems in place and this budget program could be seen to be introducing change and change is not easily accepted. Furthermore, the budget program might be seen to be introducing more work because it required rigorous pre-implementation planning.

Some participants felt that acceptability would depend on intensive marketing of the budget program at the highest budget decision-making levels, where once accepted, the program could be enforced at lower management levels as well. However, enforcement at lower management levels should be accompanied by political will to promote budget allocations that are informed by bottom-up needs assessments. One participant expressed her view as follows:

"I'm not sure because we have existing systems, but if this is marketed to the right

people, they may see its usefulness. I like the fact that it is one way of reinforcing transparency and it reduces the chances of hidden costs" (Community Liaison Officer).

7. Whether participants would need additional support to use the budget program

Twelve of the respondents stated that the budget program was easy to use and they would not require additional support to use it, but a little more practice, while three felt that they would need additional support. However, the required support described was mainly related to getting information needed to input into the program for budget estimations to be calculated, rather than using the budget program as such.

Generally, the participants felt that the budget program was basic and self-explanatory; however, it could have been more useful if users were able to navigate back and forth as they input resource information, if it provided prices for the required resources and if users could print reports of their budget calculations, rather than having to print screens. It was indicated however that support would be required to conduct resource audits, thus programme managers may need capacity to conduct audits, as they are better informed about their programmes. Some participants indicated the usefulness of embedding in the budget program information on the rationale behind its development and other guiding principles for budget planning. Frustration was also apparent in the participants' responses as indicated in the quote below:

"The support I want is for our bosses at district and provincial offices to use something like this to work out how much to give us, we can even help them if they allow us to give them the information they need to inform budget allocation" (PHC facility manager).

Comments

Following the testing questions, the participants were asked to provide any comment regarding the budget program. Overall, the comments provided only emphasised the findings of this study, where issues such as the need for rational budget allocations based on needs were reiterated. The marketing of the program at the relevant budget decision-making levels was also reiterated, as well as the notion that every programme manager should be exposed to the budget program. Other comments related to the shortcomings of the program itself, such as its inability to generate reports. Again, some comments reflected some level of frustration in relation to managers' perceived non-involvement in budget planning:

"The problem with your research is that you are presenting a good idea to the wrong level. This should be at provincial level, or you should be asking these questions to district finance managers. You must sell this idea to the province, it must be known from there what the realistic needs of facilities are" (Deputy PHC facility manager).

CHAPTER 4: DISCUSSION

This chapter interprets the findings of the study and discusses the implications for management practices in budgeting and planning for effective cervical screening programme implementation. Issues related to the key findings of this study are discussed.

4.1. Budgeting and resource allocation practices

The findings were indicative of a situation where there seemingly were no defined processes for allocating funds to health programmes in general, including cervical screening programmes, in either of the pilot sites. The findings also suggests that managers in the pilot sites neither understood nor were equipped to operationalise processes for rational budgeting and resource allocation to services. The lack of understanding of existing budget allocation practices was also indicated by some participants' perceptions that districts received funding from National Treasury. Some descriptions of budget allocation practices by the participants implied that, where managers were in a position to allocate resources, they used whatever method that worked for them to determine how much to allocate to their programmes or services. These findings confirm Barron's assertions that the reality of health managers; particularly at district level, is that of lack of information and inadequate budgeting and financial management systems, which means managers are unable to make informed decisions in relation to their service delivery budgets[50].

What also appeared to be common practice across the pilot sites was that global budget allocations were made for all health programmes, with cervical screening being a service within these programmes. It was thus difficult to clearly appreciate how budget was defined and allocated specifically to cervical screening services. Furthermore, the

participants tended to attribute challenges such as shortages of equipment and trained staff to global allocations that did not consider service needs and the perception that cervical screening as a programme had not taken off. It was further revealed in this study that there was no established cervical screening programme in all the pilot sites. These findings are consistent with those of Moodley and Hoffman (cited earlier), where various challenges to implementing cervical screening were identified, including resource shortages and undefined systems for screening service provision.

It appeared from the results that there was no commonly understood basis for budgeting and resource allocation amongst managers in general and programme needs-assessment was not performed to inform budget allocations. While some managers used their knowledge of service demand statistics, catchment area population size and expenditure history as a basis to allocate budget, for others budget allocations were resource-driven rather than needs-based. Some articles on financing for health services reported the importance of mapping specific service delivery needs to inform decisions on budget allocation[51]. This was indicated to facilitate not only effective service delivery, but also the quality of services rendered, as resource shortages would be minimised, which pointed to the need for needs-based assessments to be inculcated in planning and budgeting for cervical screening services.

The unavailability of the required management records across the sites for review as part of the situational analysis, supported the findings on the lack of defined systems for implementing cervical screening programmes, as revealed in the key informant interviews. The inadequacy of records for cervical screening services was also reported by Jasat[52] in the study to evaluate the cervical screening programme in Johannesburg.

This researcher found that the district health information system only reported two indicators for cervical screening, namely coverage and smear abnormality. This may be interpreted to reflect a culture of non-recording of essential indicators for effective cervical screening, such as budgets allocations or expenditure for the services.

Generally, the separation of financial control from service delivery appeared to have resulted in apathy in some programme managers, where it was deemed better not to ask too many questions, but to simply cope with situations as they were. However, in some instances exposure to the budget planning and estimation program seemed to have made some managers determined to use empirical evidence to challenge existing budget allocation processes, failing which the budget program could be used for their own planning purposes.

4.2. Decentralisation of budget decision-making

What also emerged from the results across the sites was that budget decision-making was highly centralised mainly at provincial level, thus budget allocations to lower levels of service delivery were top-down. Although autonomy to allocate budget to sub-programmes appeared to be centred at provincial and regional levels, even at these levels, it seemed that final decisions on the amounts allocated to services rested with heads of departments and financial managers or Chief Financial Officers (CFOs), with programme managers at these levels playing a minimal role such as submitting budget plans.

These findings may be said to reflect what is referred to by some authors as non-commitment to planning excellence[53]. For instance, the IBM White Paper[53] states that an important ingredient for effective budgeting and forecasting is the ability to align top

management priorities for service delivery with bottom-up plans to operationalise the achievement of the priorities. A sure way to fail service delivery according to this paper is a situation where programme implementers are not in tune with the aspirations of the top layers of management, as this tends to result in blurred role definitions and misaligned goals. Furthermore, the IBM White Paper argues that the role of 'Finance' at any level is to receive budget allocations to bottom-up plans and only plug in the numbers in a financial management system.

4.3. District level budget decision-making

It was revealed in all the pilot sites that programme and district managers had no authority over their budget and they were not involved in determining allocations to their programmes and services. Furthermore, these managers were said to have no capacity for budget planning and financial management. A point of concern in these findings is that there seemed to be little if any change over time, in relation to the role and capacity of districts and programme implementers in managing their budgets. For instance, the same findings were observed in research (cited earlier) conducted by Klugman and McIntyre in 2000 and the HST project in 2010[54]. Klugman et al went further to argue that legislative prescripts requiring that districts control their budgets remain in paper and far from being a reality.

Another point of concern was some participants' perceptions that districts were in control of their budget allocations, because finance managers at this levels were involved in compiling budget plans from cost-centres, they could shift funds between cost centres and they were also responsible for monitoring and ensuring that funds were used efficiently. This could be interpreted to indicate some levels of misconception regarding

legislation pertaining to the role of districts in budget planning and financial management for their districts.

Furthermore, there were mixed attitudes towards budget allocation practices and the levels of authority in budget decision-making. For instance, while budget decision-making at higher levels was said to be working well, budget allocation processes were said not to be working well. Also, where budget decision-making was said to be working well, justification for this tended to be statements like *'no one is complaining'*. These finding may be interpreted as indicative of participants perhaps being reluctant to criticise perceived authority figures at higher management levels, as well as some level of apathy or low morale, because systems were said to be working well if no one was complaining, despite all the challenges that had been described throughout the study. Klugman and McIntyre[55] observed similar findings, where the bearing of power relations between different management levels on staff morale was acknowledged by participants, as well as the subsequent bearing of this on the quality of service delivery.

In describing resource allocations practices to lower levels of service delivery, participants' perceptions of resource shortages appeared to differ between the sites, with the urban site reporting shortages as a rare occurrence, while the rural and peri-urban sites reported this to be a common occurrence. This may be interpreted to support familiar speculations that urban service facilities are usually better resourced. Furthermore, there appeared to be differences in the response to resource shortages, where managers in the urban site indicated some level of proactivity, in reporting that they sometimes wrote funding proposals to resource their programmes, while this was seldom mentioned in the other two sites. Sentiments of despondency were also common

in the rural and peri-urban sites, indicated by responses such as ‘no problem’ to questions about the functioning of the system, though they previously indicated that systems malfunctioning hindered service delivery.

4.4. Managers’ support for a district-based budgeting system

Key informants’ views on whether a district-based budgeting system would be supported at different management levels were also explored. Opinions around this were mixed, with those supporting the idea arguing that this would be in support of what districts were supposed to do in the first place, in a decentralised health system, which reflected an understanding of existing policy prescripts regarding the role of districts in managing their budgets. It was also common for the idea to be supported by regional, district and other lower level managers than provincial managers. Participants who did not support a district-based budgeting system argued that districts had no capacity to manage their own budgets and that control of budget allocations should remain at provincial level since this was working well. These results are consistent with other findings of the tendency of central officials to resist change in relation to the decentralisation of systems[56]. These findings indicate a need for more rigorous advocacy for decentralisation and capacity-building for managers at all levels to operationalise decentralised systems.

4.5. Guidance for managers to implement cervical screening programmes

One of the researchers who pointed out the lack of guidance for managers on how to plan and budget for screening services was Kawonga[33], who reported that this was one of the impediments, especially at district level, to effectively implement the cervical screening policy. Similarly, the findings of the situational analysis of this study highlighted the need for guidance in budget planning and resource allocation, to assist managers to

identify programme process requirements (or activities and resources to be budgeted for) and allocate budget informed by programme needs. The situational analysis also highlighted the need for a simple tool that managers could use to estimate the cost of the process requirements. Therefore, it was largely on the basis of the situational analysis that the cervical screening programme process requirements were documented in phase two of this study, to inform the development of a budget planning and estimation program.

The sequencing of the process requirements in phase two was not cast in stone, as sequence in planning activities may depend on context or circumstances in different service delivery settings. Thus the sequencing reflected the steps in planning that followed a logic that services were starting from zero. It followed then that the logical process would be to begin with target setting, then resource audits to determine required resources to achieve the set targets, followed by strengthening capacity for service provision (putting the required resources in place, e.g., staff, equipment, tools and support services) and then considering secondary services such as cervical cancer treatment and management.

4.6. Development of the budget planning and estimation program

Various sources of information were explored to identify existing budget planning and estimation processes aimed at helping managers to analyse programme process requirements to inform needs-based budget allocations. Some of the identified national[57] [58] [59] and international[60] [61] [62] sources pointed to different requirements for effective planning and budget allocation for health programmes. These included the need for decentralisation, identifying programme process requirements, the necessity for

guidelines for evidence-based planning and budget allocation, setting targets and increasing budget for health programmes.

However, none of the identified sources provided an analysis of process requirements for a specific health programme and linking theses to corresponding resource needs. Basically, the sources identified outlined what to do, but not how to do it. What some of these sources did was to list budget items in broad categories, e.g., human resources, administration, equipment or emphasising the need to consider various categories of budget items, e.g., capital and consumable items. While these guiding principles are useful, the findings of this study pointed to the importance of providing a tool that could actually guide managers to identify process requirements for a specific programme, quantify the resource needs and cost these as required.

Other sources of information were also explored to identify existing budget planning and allocation tools that can help managers to quantify and cost programme resources. Tools that were identified included the SAP and GRAP as cited earlier in this report, which are commonly used by government in South Africa. Other tools that were explored included the Revenue Projection Model and the Capital Budgeting Analysis Model; also cited earlier, which are both Excel-based. The Excel tools basically enabled managers to forecast institutional budgets and to organise different project metrics and their value respectively. However, Gapenski[38] stated that these kinds of tools seldom inculcate the ideal of needs-based planning and budget allocation, because they were often used after the budget has already been allocated.

A similar tool to the budget program developed in this study was published by the WHO[63] in 2012. However, this tool was designed for costing HPV vaccination programmes at country level, thus it outlined budgeting processes in this context. Although the tool was at a high level in that it used country information, it was highly similar to the budget program as it outlined different processes, activities and resources required for programme implementation, such as professional and support staff training, public education and service delivery budget line items, with resource unit costs and total costs for different component of the HPV vaccination programme.

The tool was also highly sophisticated in that; amongst other functions, it provided worksheets where programme process requirements may be broken down, it calculated recurrent costs, it could be navigated back and forth, it considered other economic factors such as inflation and exchange rates and it could generate different reports and charts, including costing summary tables and reports of outputs linked to costs. The WHO tool however did not include cost calculations for some support systems such as transport for different aspects of service delivery, as this was reported to be contextual for each country. Thus countries were encouraged to estimate these outside of the tool. Similarly, the tool did not provide prices or quantities for the required resources, obviously since these were also dependent on the economic dynamics of countries.

The advantage of the WHO tool was that it appeared to be adaptable for use at district level for cervical cancer screening programmes. Adaptation would require using district information for target calculations (instead of national) and analysing and costing resource requirements specifically for cervical screening (instead of HPV vaccination). On the other hand, while the budget program developed in this study is less sophisticated, it

provides the basic resource requirements for cervical screening, but pointing to a need for its further development for more sophisticated operations.

4.7. Testing the budget planning and estimation program

Different variables were used to test the budget program and key findings are interpreted and discussed here in relation to participants' perceived usefulness, acceptability and ease of integration of the program into existing management systems.

4.7.1. Usefulness of the budget planning and estimation program

Although the participants who tested the budget program were different from those who participated in the situational analysis, their views of the budget program appeared to be related to issues raised by the key informants in the situational analysis. This included the views of the majority of the participants that the budget program was useful in that it had the potential to facilitate a rational basis for planning and budget allocation, it provided sufficient processes, activities and resource requirements for implementing cervical screening programmes and that the budget program would promote needs-based budget allocations. The budget program was perceived to provide a logical and evidence-based process of planning and budgeting. Some participants called this "natural steps" that were essential in any planning process that aimed to ensure effective use of resources. The usefulness of the budget program was often pointed out in contrast to the current limitations in the planning and budget allocations practices, as identified in the situational analysis.

Although the budget program was perceived to be useful, the participants' perceived inability to influence resource allocation to their services appeared to be a source of frustration. Participants' frustration pertaining to their perceived non-involvement in

budget planning and allocation processes was also common in the situational analysis. Similar findings have been reported in other studies, such as the HST and the DoH[64] study to review structures, competencies and training interventions to strengthen health district management. Thus the budget program was seen to be useful because it appeared to have the potential to address limitations that were perceived to result in budget allocations that were misaligned to programme needs and the subsequent frustration amongst managers.

4.7.2. Acceptability of the budget program

As a tool that was perceived to be essential for planning and budget allocation, the program was highly accepted by the participants, particularly as it was perceived to promote transparency and equitable distribution of resources. Familiar expressions related to dissatisfaction around current budgeting practices included that the budget program would facilitate a bottom-up approach to budget allocation, which was seen to necessitate the involvement of managers at service delivery level in planning and budgeting processes. However, the participants were also concerned that the program might not be accepted at the relevant budget decision-making levels, because it would be seen to be introducing change or more work.

The testing of the budget program appeared to have been educational for some participants, as some realised that they could use the program to develop budget plans and motivations that were supported by evidence; and where possible, they could use these to refute inadequate budget allocations. Hence the notion of bottom-up budget planning and allocation was strongly advocated for by almost all the participants. Global allocations were therefore criticised and deemed unnecessary, since managers at lower

levels could be requested to provide information on programme needs on the basis of which higher authorities could allocate budget. The idea of planners at higher levels sourcing planning information from lower level managers was also advocated for in the 'How to Manage' Series for Health Care Technologies Guide 2[65], which supports the legitimacy of the participants' perceptions of the bottom-up approach to budget planning and allocation. The authors of this guide went further to argue that top-down planning and budgeting often result in misaligned budget allocations to programme needs, which affects the quality of services as well as the efficiency and impact of services at all levels of service delivery.

Generally, the support given by the participants to the proposed budget planning and estimation program indicated that the program was in keeping with reality as per their perceptions of how current challenges could be mitigated by the program, especially since the program was seen to be relevant at different management levels, including lower management levels, where the program could be used to identify needs and motivate for resources accordingly. However, mitigating the challenges identified in the situational analysis would require amongst other things, political will at provincial level, to enable districts to manage their budgets and service delivery as envisaged in national legislation.

4.7.3. Integrating the budget program into existing systems

For most participants the budget program appeared to make sense because it was perceived to suggest planning processes that could be easily integrated in existing management systems. More so because the testing seemed to reveal what was going wrong in relation to the challenges they experienced in current planning and budget

allocation practices. Thus the participants felt that the program should not only be marketed to budget decision makers, but it should also be promoted to all levels of management, to resolve some of the challenges currently experienced. Integrating the budget program into existing management systems was seen not to require any new action, but doing things the rational way, like planning budget allocations on the basis of target populations, resource audits and programme needs.

Although the budget program was supported by the participants, it must be noted that two major flaws of the program were pointed out in the testing, i.e. the non-complex nature of the program such as its inability to generate reports of calculated budgets and the fact that the program does not allow users to navigate back and forth, requiring the user to take notes of the calculations or print screens as they use the budget program. This indicated that although the program was perceived to be useful, it would need to be upgraded with more complex software to achieve its full potential.

The findings of this study should be read in view of the limitations stated earlier in the methodology, that participants in the testing of the budget program (phase 4 of this study) were not those initially intended, i.e., they were not those who participated in the CHIP and the situational analysis. This means that simulated cervical screening information, estimated resource quantities and costs were used to test the program rather than real life figures from a cervical cancer screening programmes. The implication of this could be that the participants' perceptions of the value and benefits of the budget program may not reflect a true picture or the reality of how the budget program could work if applied by managers who ordinarily work in cervical screening programmes.

Secondly, the actual budget decision-makers were not available to participate in this study, which was a weakness that was also pointed out by the participants in both the situational analysis and the testing of the budget program. However, despite the limitations stated above, it was assumed that the participants in both the situational analysis and the testing of the budget program were still relevant in that they were affected by budget decisions made at higher levels. Therefore, the findings of this study were seen to be valid from a bottom-up perspective, though input from decision makers would have clarified some of the remaining questions, such as what informed budget allocations and their perceptions of the reasons for the challenges reported by the key informants. The perceived usefulness, acceptability and ease of integrating the budget program into existing management systems from the perspective of budget decision-makers would also have benefited the study.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

From the results of this study, it may be concluded that the process of allocating budgets was regarded as a specialised process in all the pilot sites, where mainly finance managers assisted heads of departments to make key budget allocation decisions. This had the consequence of uninformed and inadequate budget allocations, since programme managers who were described as experts in programme needs were excluded in the process. This was justified by the participants' frustrations pertaining to lack of clarity on what determined budgets allocated to their programmes, non-transparent and unequal budget allocations and that budget decision-makers were not aware of their programme needs. This study provides a tool that aims to contribute to the development of a more streamlined and rational approach to budget planning and estimation that could minimise some of the sources of frustration described in this study.

The budget program development and testing showed that the program could be applied by managers at decentralised districts and sub-districts, to better plan and estimate budget for effective implementation of the cervical cancer screening policy. The program appeared to address the impediments in budget planning and allocation practices revealed in the situational analysis. However, adopting the budget program at the relevant budget decision-making levels was perceived to require some paradigm shift in relation to the current budget allocation practices. The roles of programme and district managers in the budget allocation processes would need to be re-defined and clarified to enable them to assume authority over budgeting for their programmes and services. This may imply the need for rigorous advocacy for de-centralisation to enforce the role of

districts in translating national policy into implementation, and for the districts to be capacitated to optimally fulfil this role.

5.2. Recommendations

The recommendations emanating from the findings of this study are as follows:

1. It is recommended that further work is done to upgrade the budget program with more advanced software, to enhance its functionality to perform more complex actions such as generating reports and charts, as well as enhancing its navigation capabilities.
2. Once the budget program is upgraded, it would be necessary for managers at different levels to be trained to use the program, which should be combined with orientation to planning and budgeting and financial management, to enhance effective use of the budget program.
3. One of the findings of this study was that targets for screening were not reached because of inadequate demand for Pap smears by eligible women. It is therefore recommended that efforts to improve systems for screening services should be complimented with efforts to create demand for services, such as educating eligible women on screening services.
4. Finally, the findings of this study necessitated the recommendation for the budget program to be promoted at budget decision-making levels for buy-in to implement the program and also endorse it to all levels of management to streamline planning and budgeting processes.

As it often happens with research work, residual questions remain that need further investigation. This research is no exception. The recommendations in this study

necessitate more work to take the findings forward. This would include further work to advance the budget program using more sophisticated software to enhance its functionality, advocacy campaigns to solicit buy-in at the relevant budget decision-making management levels and capacity-building for programme and district managers.

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APPENDICES

APPENDIX A: *Key Informant Information sheet and consent form*

CHIP BUDGET SYSTEM SITUATIONAL ANALYSIS

Key Informant Information

In South Africa cervical cancer (cervical cancer) is a relatively common disease, with a crude incidence rate ranging from 23 per 100 000 in younger women to 76 per 100 000 amongst women over 35. However, this disease can be easily prevented at low cost by implementing a cervical cancer screening programme. Evidence has indicated that implementation of organized mass screening programmes can significantly reduce the incidence of cervical cancer. Although the National DoH has introduced a national cervical cancer screening policy, research has shown that implementation of policies at district level tends to be problematic, particularly because it is often not clear how district managers should plan, budget and implement health services and programmes. It is also true that there are no budget programs or guidelines for implementing the new cervical cancer screening policy.

The Women's Health Project; a Women's Health Research Unit of the School of Public Health at the University of the Witwatersrand, the Women's Health Research Unit at the University of Cape Town, in conjunction with the National Department of Health, are currently conducting a project called 'Cervical Health Implementation Project (CHIP). The project is carried out in three pilot sites selected in three provinces (Waterberg in Limpopo, Brakpan in Gauteng and Mitchell's Plain in the Western Cape. The aim of the CHIP is to explore processes and systems that are required in order to implement an effective cervical cancer screening programme. Lessons learned from this project will inform the implementation of the national cervical cancer screening policy throughout the country.

One of the components of the CHIP requires the development of a budget system that will assist district managers in budgeting for the implementation of the new national cervical cancer screening guidelines. In order to budget for health programmes effectively, district managers need to be able to identify the processes involved in

implementing the programmes, so that they can budget accordingly. The study will be about operationalising the new national cervical cancer screening policy in terms of budgets. It seeks to develop the budgeting system that will guide district managers in budgeting for the implementation of the new cervical cancer screening policy.

This part of the project aims to work with health programme managers at various levels, in order to develop the budget system. We would appreciate if you could spend about 10 minutes answering a few questions about current budgeting systems for cervical cancer programmes in your (province/district/facility). The information you provide will be kept confidential and it will not be linked to you in any way. You may refrain or withdraw from the interview at any time you wish to do so. However, your participation will assist us to improve budgeting, not only for cervical cancer screening programmes, but also for other health programmes.

Thank you.
Participant's signature.....
Researcher's signature.....

APPENDIX B: SITUATIONAL ANALYSIS QUESTIONNAIRE

CHIP BUDGET PROGRAM SITUATIONAL ANALYSIS

KEY INFORMANT INTERVIEW

Province----------

District----------

Institution----------

Institutional Level----------

Date: Day.....Month.....Year.....

Name of Interviewer.....

Questionnaire number.....

Hello, my name is Jamela Robertson. I'm a researcher at the Women's Health Project. We are conducting a cervical health implementation project (CHIP) in this province and two other provinces (name the pilot sites). One of the components of the CHIP requires the development of a budget system that will guide district managers in budgeting for the implementation of the national cervical cancer screening policy. This part of the project aims to work with health programme managers at various levels, in order to develop the budget system. We would appreciate if you could spend about 10 minutes answering a few questions about current budgeting systems for cervical cancer programmes in your (province/district/facility). The information you provide will be kept confidential and it will not be linked to you in any way. You may refrain or withdraw from the interview at any time you wish to do so. However, your participation will assist us to improve budgeting, not only for cervical cancer screening programmes, but also for other health programmes.

Thank you.

Background Information – For all respondents				
1.	Sex	F	1	
		M	2	
2.	Age	.....*Code later*		
3.	Professional qualifications			.....*Code later*
4.	Position in institution			.....*Code later*
5.	How long have you been in this position?			.....*Code later*

6.	What role do you play in this institution?	.....	
Budgeting and Resource Allocation			
7.	Do you have a budgeting process for health programmes in this institution?	Yes	1
		No	2
8.	If yes to q. 7, please describe the budgeting process to me.	....	
9.	In your opinion, does the existing budgeting process work well?	Yes	1
		No	2
10.	If yes to q. 9, please explain.	....	
11.	If no to q. 9, please explain.	....	
12.	How can the shortfalls in q. 11 be addressed to improve the budgeting process?	....	
13.	What role do you play in budgeting for health programmes in this Province/District/Facility?	....	
14.	Please describe to me the process through which your institution/department receives funding. **(prompt: where budget comes from/how it is allocated – on what basis)**	....	
15.	Can you motivate for funding from higher levels of authority?	Yes	1
		No	2
16.	If yes to q. 15, how do you motivate for funding? **(prompt: justification, basis of justification)**	....	
17.	*For provincial and district managers only:* Please describe to me the process through which your department allocates its budget. **(prompt: to whom; {departments or programmes?, how often, motivations or fixed amounts)**	....	
18.	Does the process in q. 17 work well for your institution?	Yes	1

		No	2
19.	If yes to q. 18, please explain.	....	
20.	If no to q. 18, please explain.	....	
21.	How can the shortfalls in q. 20 be addressed to improve budgeting for health programmes?	....	
22.	*For provincial and district managers only:* Please describe to me the rationale behind which your department allocates budget. **(prompt: criteria/basis of criteria)**	....	
23.	*Facility managers only:* Please describe to me the rationale behind which funds are allocated to different health programmes or services in your facility.	....	
24.	How often do you allocate budgets to various health programmes or services?	Yearly	1
		Once in 2 years	2
		Once in 3 years	3
		Once in 4 years	4
		Once in 5 years	5
25.	Can you please describe the line of authority in budget allocation for health programmes in your department? **(prompt: autonomy at each level)**	....	
26.	Does this line of authority work well in this institution?	Yes	1
		No	2
27.	If yes to q. 26, please explain.	....	
28.	If no to q. 26, please explain.	....	
29.	How can the shortfalls in q. 28 be addressed to improve the situation?	....	
Cervical cancer screening programmes – *For Reproductive Health Coordinators*			
30.	Do you have a cervical cancer screening programme?	Yes	1

		No	2	
31.	If yes to q. 30, which year was the programme put in place?	....		
32.	If yes to q. 30, do you have a specific budget for the cervical cancer screening programme?	Yes	1	
		No	2	
33.	If yes to q. 32, how was the budget determined?	....		
34.	If no to q. 32, please tell me how the cervical cancer screening programme is funded?	....		
35.	Please tell me if the following support systems/resources for implementing cervical cancer screening programmes are in place and functioning?	**Systems/Resources**	**In place/Available**	**Functioning**
		Referral	Yes 1 No 2	Yes 1 No 2
		HIS	Yes 1 No 2	Yes 1 No 2
		Follow-up	Yes 1 No 2	Yes 1 No 2
		Equipment	Yes 1 No 2	Yes 1 No 2
		Trained staff/mechanism for ensuring training of staff	Yes 1 No 2	Yes 1 No 2
		Laboratory	Yes 1 No 2	Yes 1 No 2
		Colposcopy machines	Yes 1 No 2	Yes 1 No 2
		Equipment audits	Yes 1 No 2	Yes 1 No 2

		Management guidelines	Yes 1 No 2	Yes 1 No 2
		Budget system	Yes 1 No 2	Yes 1 No 2
36.	If no to any systems/resources in q. 35, what are the problems?	.....		
37.	Do budget allocated for cervical cancer screening programmes take into account the above (q. 35) support systems/resources for implementing a cervical cancer screening programme? **(Watch out for yes response while meaning global allocations).**	Yes	1	
		No	2	
38.	If no to q. 37, how are support systems/resources funded?	.....		
39.	Do you set targets/goals for cervical cancer screening programmes?	Yes	1	
		No	2	
40.	If yes to q. 39, please describe to me the process through which you determine your target/goals. **(prompt: source of information, how targets are calculated, how often targets are set)**	.....		
41.	What was your previous target?	.....		
42.	Was the target reached?	Yes	1	
		No	2	
43.	In no to q.42, what were the problems?	.....		
44.	Can you please suggest how the problems in q. 42 may be addressed to improve the situation?	.....		
45.	What is your next goal/target?	.....		
46.	Do you monitor the process of your cervical cancer screening programmes?	Yes	1	
		No	2	

47.	If yes to q. 46, please describe the monitoring process to me. **(Prompt monitoring of outputs, e.g., no. smears done, trained staff, and adequacy).**	....
48.	If no to q. 46, please tell me how you measure the progress of your cervical cancer screening programmes?	.... ……

APPENDIX C: Screening process requirements and Excel budget program prototype

Introduction

Before using the budget planning and estimation program, you need to have at hand **price lists and quotes** for the **line items** and other activities required for effective implementation of a CERVICAL CANCER programme. You also need to work out **quantities** required for each line item. You need this information to enter into the budget program to estimate your annual budget for your screening programme. The line items you need to allocate budget will include the following:

Table 1: Cervical Screening Process Requirements:

No.	Screening Component	Activity	Resources for screening services at PHC level	Quantity	Unit Cost	Sub-Total per Item
1.	Equipment and supplies	Equipment audit to determine how much resources are required for screening as informed by the calculated targets.	**Capital Items**			
			Examination Couch	0	0	0
			Examination light	0	0	0
			Steriliser (boiler or autoclave)	0	0	0
			Vaginal speculum	0	0	0
			Swab holding forceps	0	0	0
			Container for soiled instruments	0	0	0
			Consumable Items	0	0	0
			Aylesbury spatula	0	0	0
			Glass slides	0	0	0
			Slide markers	0	0	0
			Slide Mailers	0	0	0
			Gloves	0	0	0
			Decontamination fluid	0	0	0
			Fixatives	0	0	0

			Linen savers	0	0	0
Sub-Total Cost for Equipment and Supplies				**0**	**0**	**0**
2.	Human Resources	Staff Audit to determine how many trained nurses are required for screening to reach the target as calculated.	Audit forms	0	0	0
			Audit staff/consultant	0	0	0
		Staff training	Trainers	0	0	0
	2.1. Professional Staff	**Practical/Clinical Training** • Doctors (Colposcopy) • Professional Nurses (Screening) **Theoretical & Systems Training** • Doctors • Professional Nurses ***NB: Consider number of trainees and training workshops for appropriate resource allocation***	Venues	0	0	0
			Accommodation	0	0	0
			Transport	0	0	0
			Training material	0	0	0
			Refreshments	0	0	0
			Overheads, etc.	0	0	0
	2.2. Support Staff	**Theoretical & Systems Awareness Training** • Counsellors/Peer Educators/Community Development Workers • Health Promoters (Client Follow up) • Administrative Staff (records/forms) • Supervisors for monitoring and evaluation. ***NB: Consider number of trainees and training workshops for appropriate resource allocation***	Venues	0	0	0
			Accommodation	0	0	0
			Transport	0	0	0
			Training material	0	0	0
			Refreshments	0	0	0
			Overheads, etc.	0	0	0

Sub-Total for Human Resources				**0**	**0**	**0**
3.	Tools for systems functioning	Health Information System (HIS) for records and reports of screening performance	Pap Registers	0	0	0
			Collation Sheets	0	0	0
		Client Follow-up of women who have been screened	Follow-up Cards	0	0	0
		Standardised Cytology Reporting (completing cytology forms)	Cytology Report Forms (sometimes Lab provided)	0	0	0
		Referral of women with HSIL to services for the management of HSIL lesions (colposcopy)	Client Referral Letters	0	0	0
		Feedback from colposcopy services	Feedback Letter	0	0	0
Sub-Total for Tools for systems functioning				**0**	**0**	**0**
4.	Transport and Communication for referral services	Courier service for collecting and delivering Pap smear specimen between facilities and laboratories.	Vehicles	0	0	0
			Drivers	0	0	0
		Communication Systems	Fax, landline phone, email, sms	0	0	0
		Client follow-up transport to follow up women at home.	Vehicles	0	0	0
			Drivers	0	0	0
Sub-Total for Transport and Communication for referral services				**0**	**0**	**0**
5.	Community Information and Education	Community educational campaigns	Posters	0	0	0
			Pamphlets	0	0	0
			Advertisements	0	0	0
			Radio Slots	0	0	0
		Peer Education	Venues	0	0	0
		• Trainees per Work shop • Training Workshops • Venue cost per	Accommodation	0	0	0
			Transport	0	0	0
			Training material	0	0	0
			Refreshments	0	0	0

		Workshop • Trainer per Workshop • Trainer travel and accommodation • Refreshments per Workshop • Training manuals	Overheads, etc.	0	0	0
Sub-Total for Community Information and Education				**0**	**0**	**0**
6.	Laboratory Services	Reading and reporting on Pap smears	Lab costs	0	0	0
			Lab personnel (where applicable)	0	0	0
			Lab equipment	0	0	0
Sub-Total for Laboratory Services				**0**	**0**	**0**
7.	Services for the Treatment of Precursor Lesions (HSIL)	Colposcopy and Treatment	Colposcopy Machines or one of these: Letz, Cryotherapy, Cone.	0	0	0
Sub-Total for Services for the Treatment of Precursor Lesions (HSIL)				**0**	**0**	**0**
8.	**OPTIONAL:** **Costing for the services below may not be necessary as they fall outside the scope of PHC service delivery. However, they are included here as screening providers may need to be aware of them in order to advice clients or their families if the need arise.**					
8.	Services for the Management of Cancer	Client advice (if the need arise)	Treatment facilities	0	0	0
			Palliative care facilities	0	0	0
			Counselling centres/services	0	0	0
Sub-Total for Services for the Management of Cancer				**0**	**0**	**0**
Overall Budget Total				**0**	**0**	**0**

Notes on the process requirements for cervical screening

EQUIPMENT AND SUPPLIES

- Most of the capital items may be in place, therefore, it is only where they are not in place that they would have to be budgeted for. Consumable items should be included in the recurrent budget.
- In terms of the planning norms and screening targets, ask each clinic in your area to quantify how much *additional* equipment they will need and add these up to quantify the total cervical screening equipment needed for your Province, Region, District, Local Authority or Local Area.

PROVIDER TRAINING

There may be **initial** costs and **on-going** costs of training staff. You are also considering how many providers, by cadre (Clinical/Management/Admin., Support staff, etc.) are required. How many are already available and so, how many ***additional*** providers will be required? Do they need training, and if so how many need to be trained now and how many later: i.e. what would be your training plan? E.g., will staff be trained in one year, or over a number of years? After assessing human resource needs, managers should:

- Develop a training plan for the various cadres of staff and estimate costs for these trainings.
- Informed by the type of training and the duration, the following costs may need to be included:
  - Venue hire,
  - Transport and accommodation for participants,
  - Refreshments for participants,
  - Facilitator fees.

Related information to the line items for implementing a cervical cancer screening programme may be accessed in the Cervical Health Implementation Project Manual, Implementing Cervical Screening in South Africa: A Guide for Programme Managers (CHIP 2004), available from the website of the Western Cape Government, link: http://www.westerncape.gov.za/eng/pubs/guides/I/122500.

TOOLS, FORMS, GUIDELINES

- Printing costs are available from printers and depending on the quantities required, on-going printing costs should be included in the recurrent facility budget.
- Where these tools are not in place, the number required per month or per year will have to be quantified and the cost of printing these quantities need to be determined.

TRANSPORT AND COMMUNICATION SYSTEMS

- These systems should generally be catered for within existing health service delivery budgets and would not necessarily require substantial additional funding.
- Where the laboratory does not have a courier service for collecting specimens and returning results, budget for this service need to be allocated. At clinic level, transport may be needed in some settings where home visits have to be done to trace clients with positive smears.
- Communication systems such as telephone (for client follow-up) and fax (to relay results) would be ideal.

INFORMATION, EDUCATION AND COMMUNICATION (IEC) STRATEGIES

- The cost of developing IEC materials is usually a once-off activity. However, various organisations in South Africa have developed IEC materials (e.g., CANSA). So, to save on development costs, existing IEC materials may be obtained from these organisations and be re-printed when required.
- However, if you are developing material from start, reprinting and distribution costs need to be allocated budget.

LAB SERVICES

- All public sector and academic institution laboratories will fall within the ambit of the National Health Laboratory Services. Thus, they will charge a fee per specimen for screen reading and reporting.
- Cytology lab fees for reading and reporting specimens:
    - The cost per smear should be obtained from the relevant laboratory servicing the area under your jurisdiction.
    - This unit cost should be multiplied by the number of smears you expect to perform in a given year (the target), to calculate your annual lab fees to include in your budget.

Although the items above are often beyond many health managers' authority, the manager need to be aware of their availability, if anything, to be able to motivate for the items if necessary.

SERVICES FOR THE TREATMENT OF PRECURSOR LESIONS

- Items for precursor treatment listed above should generally be planned and budgeted for at the provincial level, thus allocations for these should be determined on the basis of provincial needs.
- Maintenance costs for equipment should be included in the recurrent budget.
- Are there trained providers to provide the services?
- If no, include as provider training needs in the provider training component of this budget planning & estimation program.

SERVICES FOR THE MANAGEMENT OF CANCER NOTES:

- These are specialised services that require very long-term planning to develop. They are provided only at provincial or national central hospitals. In most cases the manager will utilise existing services.
- For counseling services, partnerships may be developed with local NGOs and CBOs, to contain costs.

Acquiring price lists and quotes to inform budget calculations for the line items of the CERVICAL CANCER screening programme

What this budget program does not do is attempt to provide cost for resource items required for implementing a CERVICAL CANCER programme, because prices vary across Provinces and suppliers and they change over time. Therefore, before using this budget program, health managers need to familiarise themselves with the line items in activity 3 (Line items required for implementing a CERVICAL CANCER programme), find out unit cost for the items and work out the quantities they need to achieve their targets through resource audits and then feed this information into the budget program to calculate their annual budget.

Estimating your annual CERVICAL CANCER budget

At this stage, you know the size or number of your **target population**, you have worked out your **annual target** to achieve 70% coverage within 10 years of starting your CERVICAL CANCER programme, you know all the **line items** that need to be budgeted for when implementing a CERVICAL CANCER programme, you have worked out the **number of trained nurses and other support staff** you need for the screening programme and you have the **quantities** and **unit cost** of equipment, supplies, human resource training and support structures that need to be set up. You may now proceed to feed this information into the budget program to estimate the annual budget for your CERVICAL CANCER programme.

BUDGET PLANNING & ESTIMATING ANNUAL ALLOCATION FOR IMPLEMENTING A CERVICAL CANCER PROGRAMME: Now you can install and use the budget program on cd or download the 'installation procedure' document to guide you to install and use the budget planning and estimation program online: www.wix.com/jamelarobertson/jamelarobertson

APPENDIX D: Budget planning and estimation program (attached as CD)

APPENDIX E: Budget Program Testing Questionnaire

Good day, my name is Jamela Robertson. I am conducting an evaluation of a budget planning program that was conceptualised as part of a cervical health implementation project (CHIP) from 2002 to 2004. The CHIP was implemented by the Women's Health Project at the University of the Witwatersrand. One of the components of the CHIP required the development of a budget system that would guide health managers to plan and budget for the implementation of the national cervical cancer screening (cacx) policy. The budget planning program under evaluation was therefore developed. I will appreciate if you could spend at least 20 minutes testing the user-friendliness of the budget program. Please open the budget planning program in this CD (CD given to participants), install it in your computer as directed when you insert the CD in your computer, and use the program to estimate an annual budget for cervical cancer screening in your area of jurisdiction. Once installed and launched, the program will prompt you for information to enter in the respective cells. When you have finished using the program, please answer the questions that follow below this box. The information you provide will be kept confidential and it will not be linked to you in any way. You may refrain or withdraw from participating in this evaluation at any time you wish to do so. However, your participation will assist us to improve budgeting, not only for cacx screening programmes, but also for other health programmes.

Thank you.

Background Information – For all respondents
Province---------- **District----------** **Institution----------** **Institutional Level----------** **Date:** Day.....Month.....Year..... **Name of Interviewer.....** **Questionnaire number.....**

	Sex	F	1	
		M	2	
	Age			
	Professional qualifications			
	Position in institution			
	How long have you been in this position?			
	What role do you play in this institution?			

Please indicate below whether you think:

1. The budget program would help health managers to undertake more rational budgeting.

_____

_____

2. The budget program provides sufficient process requirements for planning and budgeting for cervical cancer screening.

_____

_____

3. It would be feasible to link the program to budget planning and estimation

processes.

4. It would be feasible to implement the program at your level of jurisdiction.

5. The program would be acceptable for budget planning purposes in your area of jurisdiction.

6. It would be easy to integrate the program to other management systems in your area of jurisdiction.

7. You would need additional support to use the program.

Comments:

APPENDIX F: Budget Program Rationale and Background Information (This is linked to the computerised program as 'Before using the Program' document).

BUDGET PLANNING PROGRAM

BEFORE YOU USE THE PROGRAM

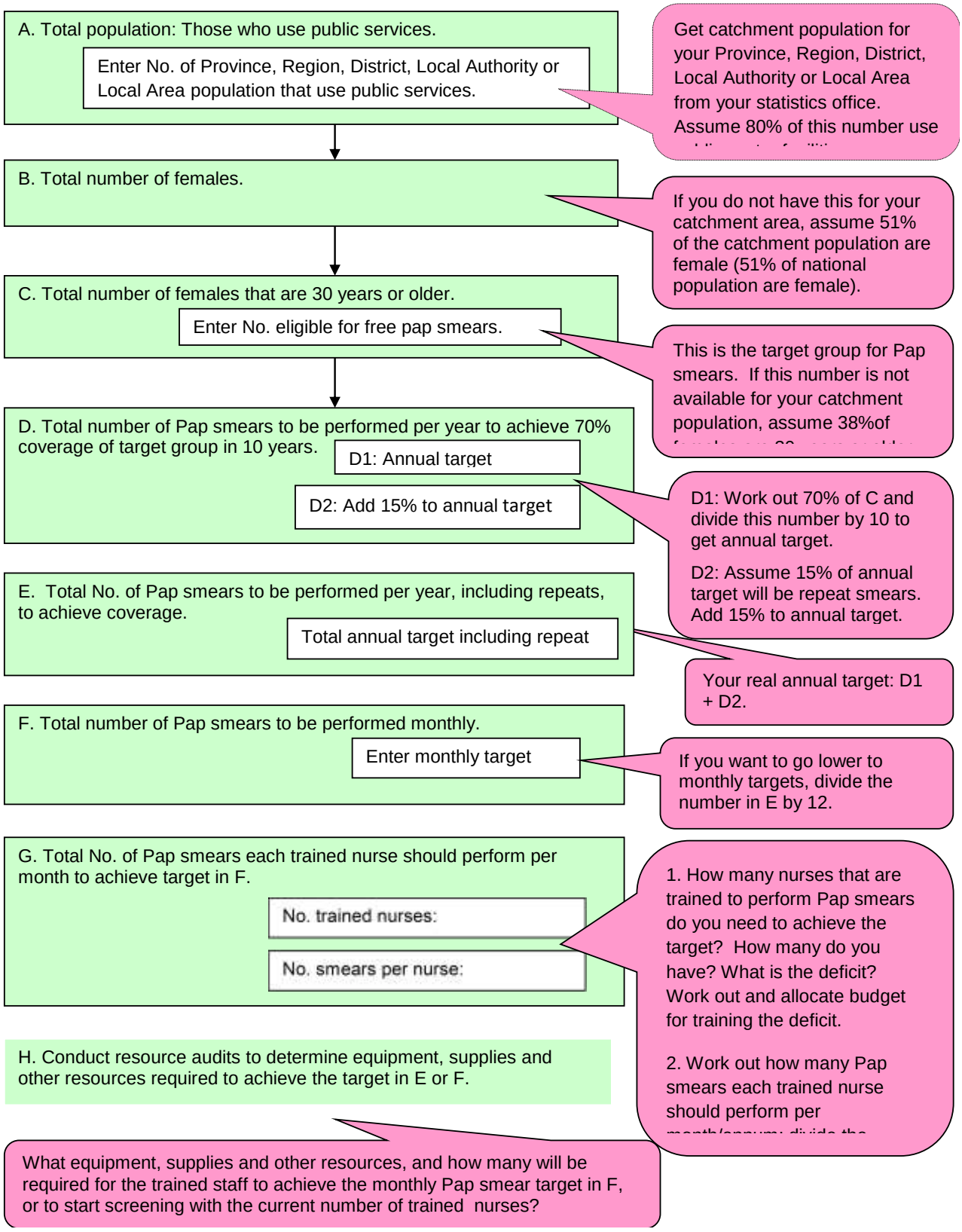
To get the best out this program, it is crucial that you read all guidelines provided in this section. The guidelines include various processes that are required for supporting budget planning and estimation, as well as information that you will need to feed into the program for budget estimations.

What the budget program does

This program will help you follow a rational process to planning and estimating your annual budget for implementing a cervical cancer screening (CERVICAL CANCER) programme, whether you are estimating budget for a Provincial, Regional, District, Local Authority or Local Area CERVICAL CANCER programme. The budget program aims to assist health managers to minimise instances of over-allocations or under-allocations, by guiding them through a process of using population data and resource audits, in order to estimate budget efficiently, informed by systematically identified programme needs. In this budget program there are activities that you need to engage in, prior to embarking on the process of estimating your budget. Information gathered through these activities will inform how you estimate budget for your CERVICAL CANCER programme. Therefore, before you estimate your annual budget, you need to **calculate your target population**, conduct some **planning activities** including **staff and equipment audits**, familiarise yourself with **line items required for implementing a CERVICAL CANCER programme**, get **price lists and quotes for the CERVICAL CANCER programme line items** and then proceed to **estimating your annual budget** on the basis of information you have systematically gathered through the above activities.

1. Calculating your target population

Public service expenditure should be driven by the number or size of population whose needs it is intended to address. Therefore, service target populations should inform not only budget estimates, but also planning activities, so that health managers make informed decisions for efficient budget allocations. Using census data, calculate the annual screening target population for your Province, Region, District, Local Authority or Local Area. Below is a guide on how to calculate your target manually:


A. Total population: Those who use public services.
Enter No. of Province, Region, District, Local Authority or Local Area population that use public services.
Get catchment population for your Province, Region, District, Local Authority or Local Area from your statistics office. Assume 80% of this number use
B. Total number of females.
If you do not have this for your catchment area, assume 51% of the catchment population are female (51% of national population are female).
C. Total number of females that are 30 years or older.
Enter No. eligible for free pap smears.
This is the target group for Pap smears. If this number is not available for your catchment population, assume 38%of
D. Total number of Pap smears to be performed per year to achieve 70% coverage of target group in 10 years.
D1: Annual target
D2: Add 15% to annual target
D1: Work out 70% of C and divide this number by 10 to get annual target.
D2: Assume 15% of annual target will be repeat smears. Add 15% to annual target.
E. Total No. of Pap smears to be performed per year, including repeats, to achieve coverage.
Total annual target including repeat
Your real annual target: D1 + D2.
F. Total number of Pap smears to be performed monthly.
Enter monthly target
If you want to go lower to monthly targets, divide the number in E by 12.
G. Total No. of Pap smears each trained nurse should perform per month to achieve target in F.
No. trained nurses:
No. smears per nurse:
1. How many nurses that are trained to perform Pap smears do you need to achieve the target? How many do you have? What is the deficit? Work out and allocate budget for training the deficit.
2. Work out how many Pap smears each trained nurse should perform per
H. Conduct resource audits to determine equipment, supplies and other resources required to achieve the target in E or F.
What equipment, supplies and other resources, and how many will be required for the trained staff to achieve the monthly Pap smear target in F, or to start screening with the current number of trained nurses?

2. Planning activities

Basic Principles for Budget Planning and Estimation

Introduction

As various efforts for improving cervical cancer screening are being explored, it is likely that cervical cancer screening services will eventually improve and consequently client demand may increase, rendering the financial burden for providing the services to also increase. Thus, it is essential that health managers are able to identify the processes involved in implementing cervical cancer screening programmes, so that they may include all programme inputs in the budget planning process.

Certain guiding principles need to be considered when budget decisions are being made, to enhance efficient use of resources:

- Budget allocations for screening should as much as possible have a rational basis, taking into account programme needs and anticipated demand or the size of the target population to be screened.
- The necessary systems for cervical cancer screening (provider training, treatment facilities, equipment and supply systems, laboratory services, community mobilisation programmes) must be available and functioning to reduce inappropriate use of time and resources.
- Staff needs training to ensure good quality smears to avoid wastage and to understand the financial practicality of screening the right target population.
- Record-keeping is essential for monitoring and evaluation of expenditure, as well as accountability.

The health system in South Africa is structured such that managers at higher levels such as provincial and regional are often responsible for health programmes that include not only screening services, but also laboratory and treatment services. On the other hand, managers at district and facility levels are often responsible for screening services. Furthermore, depending on the management arrangements in their areas, some programme managers may be responsible for developing their own programme budgets and allocating resources accordingly, while others may be responsible only for developing service implementation plans and motivating to higher levels of management for their needs in relation to their plans.

Managers may find it useful to focus their budget allocation plans on those components of the programme that they are responsible for in their areas or levels of authority. However, it is a good principle to also assess whether those systems that are budgeted for at higher levels of authority are in place and functioning. This would assist managers to initiate a bottom-up approach to problem-solving, i.e., using their plans to motivate for these systems to be put in place, where necessary. The main issue is that regardless of

whether the manager is actually budgeting and allocating resources or merely submitting plans and motivations, their decisions must be based on a rational process, guided by the above principles.

One of the fundamental principles of budgeting is that budget allocations should be based on systematically calculated programme needs, including screening population targets, which should always be linked to programme implementation plans. Having determined the anticipated demand and systems needs, managers then need to determine the resource (human and material, including other costs) implications of providing cervical cancer screening services to cater for the anticipated demand and needs. It is essential for health managers to follow these processes so that their budget allocations are informed by identified needs and are also linked to their implementation plans. The questions they should be asking themselves as they undertake these processes are outlined in figure 1 below:

Figure 1: Budget planning process:

Target-setting

- How many women should be screened this year in our area of jurisdiction (the annual target)?
- What systems must be in place to ensure these demands are met?

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Identifying needs in relation to targets

- What health systems are generally needed to implement a cervical cancer screening programme?
- Are those systems in place?
- What do we already have: what systems are already in place and functioning?
- What don't we have: what are the gaps?
- What systems **must** be put in place to address the gaps and ensure service delivery to meet the targets?

Addressing the needs – linking resources to the target

- What are the human and material resource requirements for putting these systems in place to address the gaps and ensure service delivery to meet the targets? This is done in terms of planning norms (see below)

A prioritisation process may be required, in which case managers decide which systems need to be addressed before others, depending on the needs they identified in their settings. Thus:

- What are the priorities for now: things that must be done before we can start implementing?
- Are those priorities in place: can we start implementing with existing systems that are in place and functioning?

Generally, the circumstances in different settings should determine which resources need to be allocated budget to, in order to run screening services efficiently. There may be some systems already in place, for example master trainers whose job descriptions include training their colleagues may already be in place. Thus, there may not be a need for funds for training staff. Or, to provide counselling, managers may also limit their expenses by networking with, and utilising local NGOs and Community Based Organisations.

On the basis of these guiding principles, this planning and budgeting program aims to provide health managers with recommendations for the process of linking resources to targets in order to effectively plan and budget for their cervical cancer screening programmes. The recommendations in this budget program are based on an understanding that cervical cancer screening is often integrated within a reproductive health programme and service delivery usually occurs as part of a primary health care package. Nevertheless, it is felt that the recommendations will be useful because experience has shown that a new programme such as cervical cancer screening sometimes requires and is allocated a dedicated budget.

The main thrust of this budget program is to highlight the principles behind planning and budgeting for health programmes, mainly that resources for programmes should be allocated according to well thought-through processes for determining needs, linking these needs to resources, and that planning and budgeting should always be linked. Where managers find the recommendations in this budget program useful for cervical cancer screening, they may apply them to other programmes.

Identifying needs for implementing cervical cancer screening services

What follows below is a process that managers need to follow, to work out the resource implications of addressing identified systems needs for implementing cervical cancer screening services, so that budget allocations are made accordingly. The general process is as follows:

Develop planning norms

This should be developed to guide managers to determine the quantity of resources required for implementation. For example, how many nurse time equivalents are required to perform the target number of Pap smears per month or how many speculae are required to perform the target number of smears per month? The manager applies the planning norms to the annual or monthly screening target for her/his area or level of jurisdiction (Province, Region, District, Local Authority or Local Area) to determine the needs.

Identify resource implications and priorities

The manager should then identify the human resource, cost and material implications for providing the service according to the requirements identified above. In some cases there may not be any cost implications because the service already has the human resource or material resources required.

Therefore, only the ***new or additional costs*** need to be considered. Or, as mentioned above, only the essential priorities may be considered initially. It is a good idea to plan to develop the services to bring them up to the required level, over a period of three to four years. So, the idea is to start with the priorities and build upon those until we have the required human and material resources and systems in place. Having completed this step, the manager should be able to do the following:

- Develop an implementation plan that justifies what is required and how those requirements were worked out. For example, the plan may state that "25 additional speculae are required" and a rational basis for how the manager arrived at this will be indicated (i.e. it was worked out based on targets and planning norms).
- Where the manager is responsible for developing the budget, s/he can allocate a financial cost to the human resource and material requirements identified in step 1 and include it in the budget.
- Where the manager is not responsible for developing the budget, s/he can at the very least present the implementation plan, with the requirements clearly articulated and motivate to higher levels of management for the provision of those requirements.

Perform some basic costing

This step is optional as it is by no means the recommendation of this budget program that services cannot be implemented without a costing exercise. The unit costs may be worked out as a cost per screening visit or cost per follow-up treatment. Where costing exercises have been done for specific settings, these costing data may be used to input into the budget estimates. For example, if the anticipated annual target number of screening smears is 1000 Pap smears for a given area and the unit cost is R 20.00 per screening visit, the total cost for providing screening will be R 20,000.00.

START-UP COSTS, LONG-TERM COSTS AND RECURRENT COSTS.

Some aspects of the screening programme may need start-up costs and need not be budgeted for in consequent years, and some may need budget allocations once in a number of years. Thus, managers may need to separate these different costs, in order to budget accordingly each year. The table below indicates some systems that may require

once-off budget allocations, long-term allocations and those that may require ongoing allocations:

Start-up costs	Long-term costs	Recurrent costs
• Purchasing equipment such as speculae, autoclaves and lamps. • Purchasing consumables such as slides, fixative, spatulas etc.	• Purchasing vehicles	• Equipment maintenance • Vehicle maintenance • Purchasing consumables such as slides, fixative, spatulas etc.
• Immediate priority staff training	• Training staff for anticipated rise in demand for service	• In-service training where required
• Developing Information Education and Communication (IEC) material • Printing tools, forms, IEC materials		• Reprinting forms, tools, IEC materials
• Purchasing colposcopy and treatment equipment where none exists	• Purchasing additional treatment equipment	• Annual maintenance of equipment

Stakeholder Planning Meeting

Ideas for a stakeholder planning meeting for implementing a cervical cancer programme: It is essential that buy-in is secured from all stakeholders that will play a role in the success of a cervical cancer screening programme, thus involving these from the onset is of major importance. This may require meetings with the stakeholders to secure commitment to ensuring that all necessary support systems are functioning, for the screening programme to be implemented successfully. Some stakeholders to involve may include:

- Provincial, Regional, District, Local Authority, Local Area and Facility Managers; representing different departments such as Finance, Transport, Administration and also different health programmes such as Health Promotion, Primary Health Care and Reproductive Health.
- Laboratory managers, Hospital managers, Doctors, representatives from statistics offices (for information on target population), community representatives and other stakeholders relevant in the implementation of the screening programme.

Certain principles should govern discussions in the stakeholder meetings, these may include:

- The aim of the cervical cancer screening programme, which is to reduce morbidity and mortality due to cervical cancer.
- To reduce inequity in health by striving to reach women who previously did not have sufficient access to health services.
- To achieve the national target of screening 70% of eligible women within 10 years of starting a screening programme.

Issues that are essential to discuss in the stakeholder meetings include:

- Agree on essential components of implementing a cervical cancer screening programme (e.g., labs, hospitals, trained staff, transport, etc.) - are these represented by stakeholders in the meeting?
- Systems audit: identify and agree on systems that are required for a screening programme to function. Identify and agree on systems that are in place and those that need to be put in place – allocate roles, responsibilities and time-frames for putting the required systems in place, as well as committing funds for this (funds may be required for conducting a systems audit if this is necessary: putting systems in place may ensure efficient use of funds by not stalling services with malfunctioning systems).
- Budget: where will the money come from? Is there existing budget for the screening programme? If so, is the budget enough? Are there other sources of funding?
- Decisions on levels at which budget should be managed. This should be based on the functionality of the level, in relation to access to the budget for service delivery.
- Relationships between levels of care and support (e.g., clinics, labs, hospitals): These need to be clearly defined to avoid stalling of service processes – communication and feedback mechanisms need to be established.
- Establishing sources of information such as statistics centres, which would help assess a district's needs (e.g., population size) or setting targets (e.g., estimating a number of women to be screened a year, in order to achieve the national target of 70% in 10 years).
- Assigning of roles, responsibilities and accountabilities for agreed next steps to implementing the screening programme – Commitments.
- Establish reporting lines and aspects of the screening programme to report on.
- Establish authority where total accountability will be held for the success of the programme.
- Discuss, agree and set up record-keeping and monitoring and evaluation systems.

- *Date of next meeting to review achievements and agree on progress, for monitoring and evaluation purposes*.

Where systems are in place for a screening programme to function, health programme managers may decide to skip the planning meeting and proceed with planning and estimating budgets for their areas of responsibility. However, the planning meeting is strongly recommended to ensure that all stakeholders buy-in to the process and promote effective implementation. Especially in instances where support systems such as laboratories and hospitals are budgeted for at much higher levels, e.g., National and Provincial levels. It is crucial to get buy-in from these levels of decision-making, particularly in situations where the necessary support systems are not functioning as required for effective programme implementation.

When stakeholders in the implementation of a cervical cancer screening programme have reached common goals and understanding on the effective implementation of the programme, health programme managers may then estimate the cost of screening in their areas or levels of jurisdiction, using the suggested computerised budget planning and estimation program. Budget estimations need to be rational or evidence-based. That is, they need to be based on needs identified through systems audits, staff audits, equipment audits and target populations.

Basic guide to conducting a staff or equipment audit

One of the fundamental principles of budgeting is that budget allocations should be based on systematically calculated programme needs, including screening population targets, which should always be linked to programme implementation plans. Having determined the anticipated demand and systems needs, managers then need to determine the resource (human and material) implications of providing cervical cancer screening services to cater for the anticipated demand and needs. It is essential for health managers to follow these processes so that their budget allocations are informed by identified needs and are also linked to their implementation plans. Some of the questions they should be asking themselves as they undertake these processes are outlined below:

- How many women should be screened this year in our area of jurisdiction (the annual target)?
- What levels of staff do we need to perform cervical cancer screening?
- What number of staff at each level do we need to render accessible services and meet our annual target?
- What equipment do we need for screening to be performed?
- How many of each type of equipment do we need to achieve our annual target?

⇔

Given our annual target:

- How many staff at each level of service provision do we **have** to start screening?
- What is our staff **deficit** – the number we **need** to meet our target?
- What will it **cost** to get the additional required staff?
- How many of each type of equipment do we have?
- What is our **deficit** per each type of equipment?
- What will it **cost** to get the additional

Below is an example of how an audit may be performed:

Illustrative Staff Audit (based on screening target)

Staff category	**Number required to meet target**	**Current Number of staff**	**Deficit**	**Annual cost for deficit.**	**Total Annual Cost**
Professional Nurse	25	15	10	R1.5m	R2m
Doctor	8	4	4	R1m	R2m
Trainers	50	25	25	R0.8m	R1.6m
Lab Technicians	20	10	10	R1m	R2m

Illustrative Equipment Audit

Type of Equipment	**Number required to meet target**	**Current Number of equipment**	**Deficit**	**Annual cost for deficit.**	**Total Annual Cost**
Couch	6	4	2	R600	R1800
Lamp	6	4	2	R200	R600
Spatula	10 000	5000	5000	R5000	R10000
Slides	10 000	5000	5000	R5000	R10000

**For staff categories and types of equipment, refer to 'line items required for implementing a cervical cancer programme (Appendix E).*

APPENDIX G: Budget Planning and Estimation Program: User Guide

Budget Planning and Estimation Program – User Guide

Notes to the User:

1) Please note that the budget planning and estimation program was developed using basic software, therefore, it does not have functions to allow the user to navigate back to previous windows once a calculation has been completed in each window. If you realise that you have made a mistake in the previous window (e.g., that your entered wrong information), you will not be able to go back and correct the mistake, but you will need to start the program from the beginning.

2) The budget program does not have a function to write a report of the calculations completed. To be able to manually do this, it is recommended that you either write down the information you need from each window as soon as you complete calculations (before you click 'Next') or print the screen as you complete calculations. In this way you will be able to manually put together a report of your budget estimations per budget line.

3) For the budget program to perform calculations, information must be entered in all cells. Where this is not necessary, a Zero (0) must be entered, otherwise the program will indicate that there is an error and it will not be able to calculate.

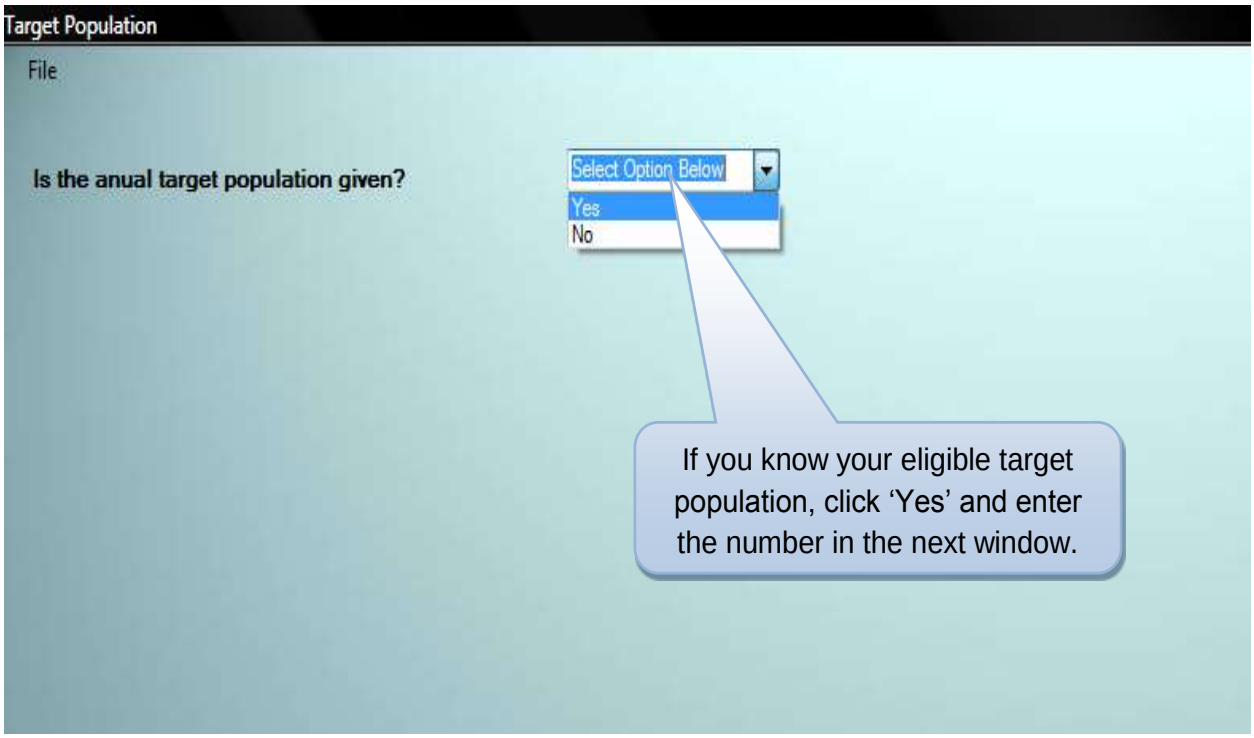
Instructions to load the CD:

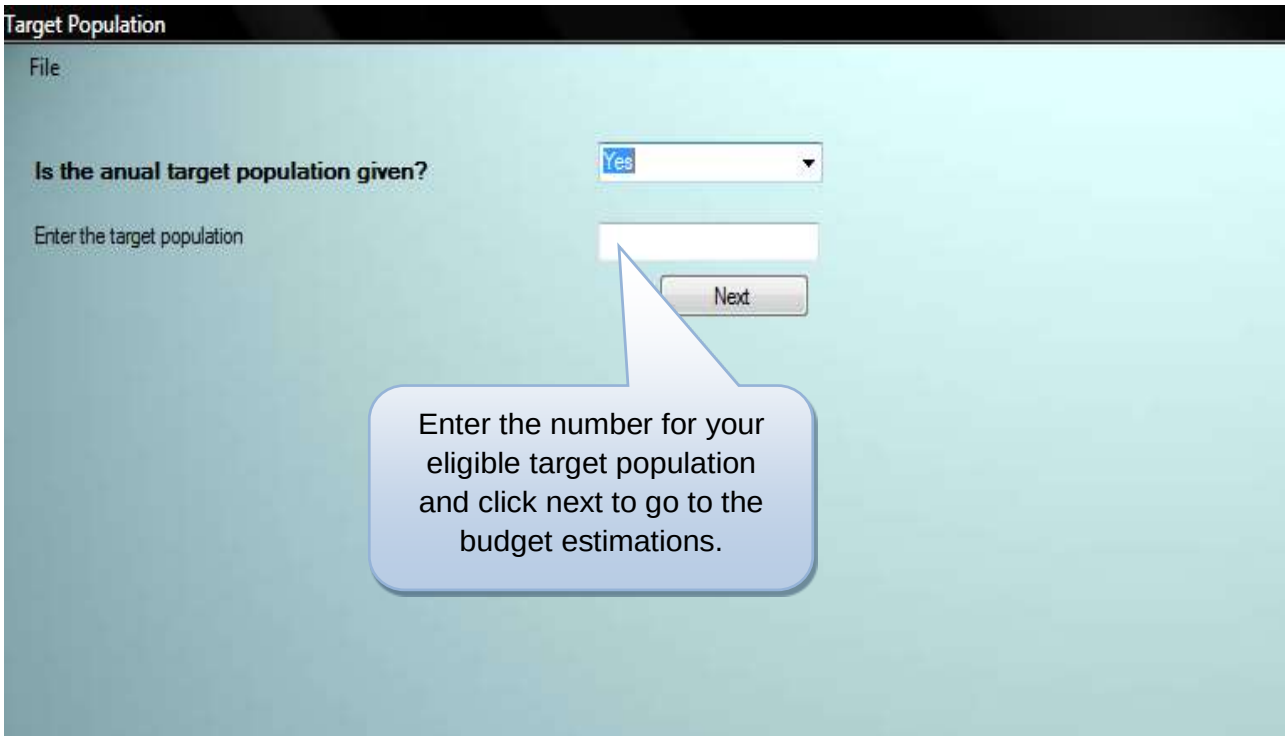
1. Load the disc into your computer.
2. Click install.
3. Save the budget program in the location of your choice (e.g., Desktop or My documents).
4. Open the program from where you saved it.
5. Click setup to run the budget planning program – the window below will appear.

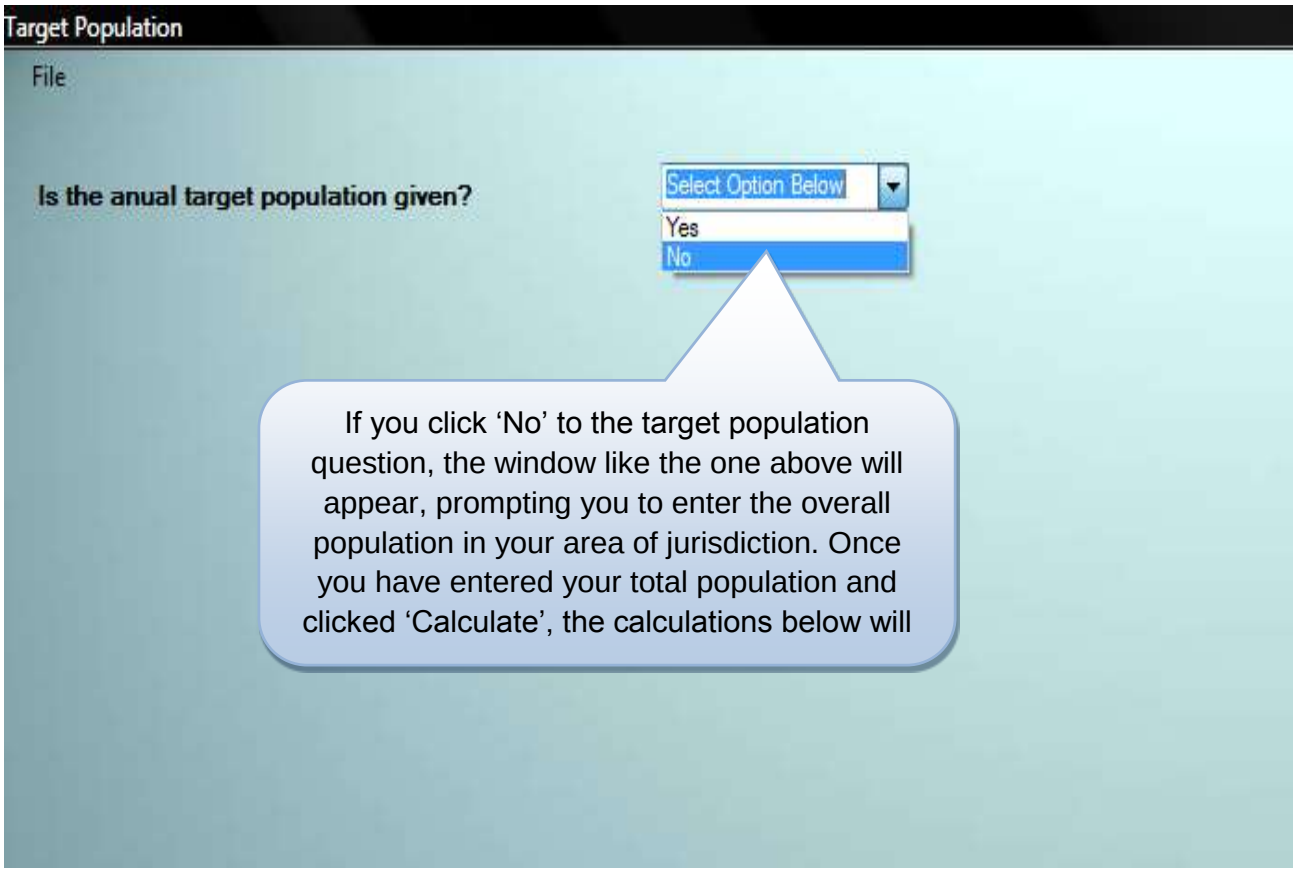
You are encouraged to read the 'Before using this program' document to enhance your understanding of the budget program before you start using it. Once the window

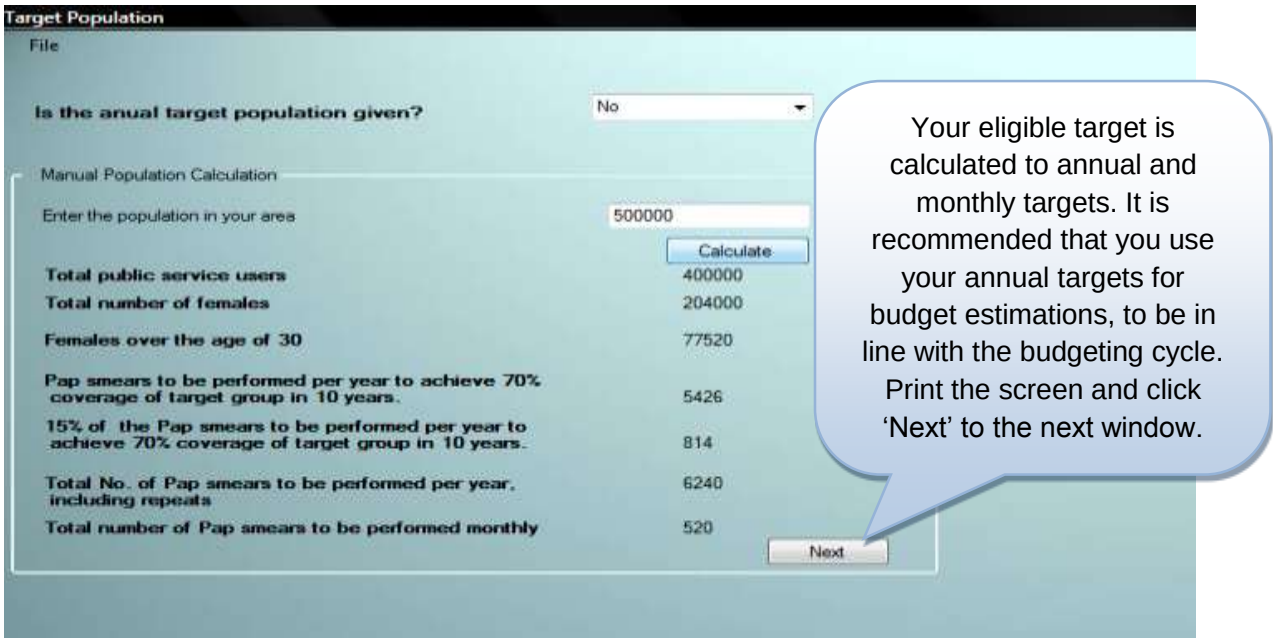
below appears, you will have about a minute to open the ‘Before using this program’ document. Otherwise the program will automatically progress to the following windows for estimating budget.



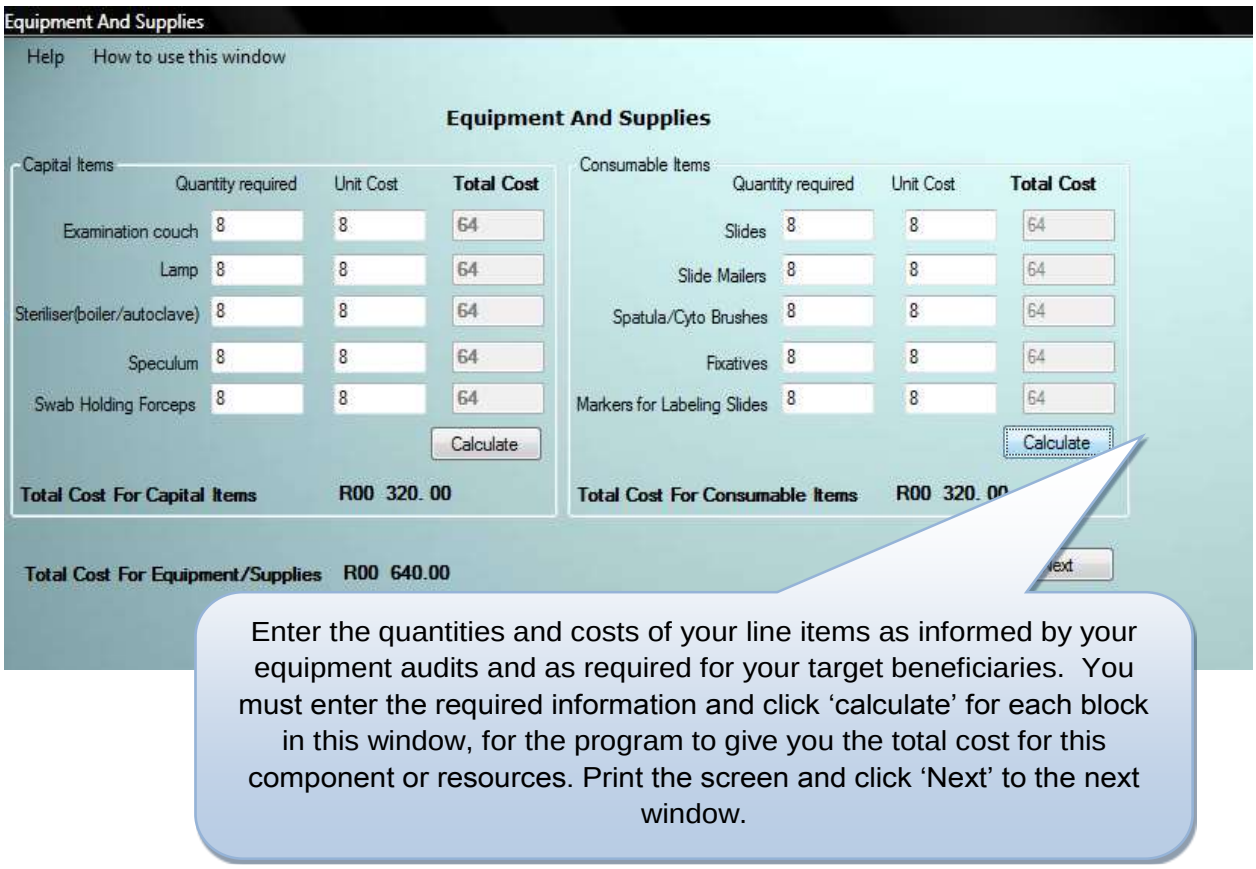

Target Population
File
Is the anual target population given?
Select Option Below
Yes
No
If you know your eligible target population, click 'Yes' and enter the number in the next window.


Target Population
File
Is the anual target population given?
Yes
Enter the target population
Next
Enter the number for your eligible target population and click next to go to the budget estimations.



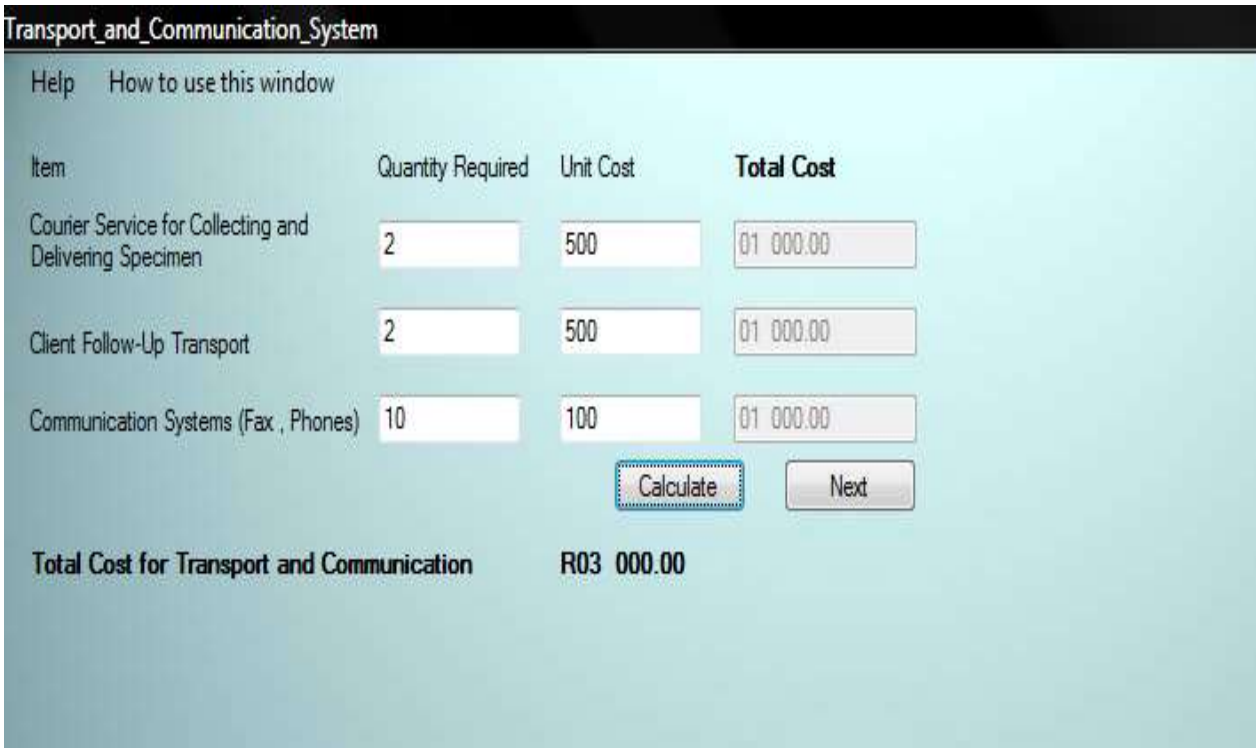


Please Note:
Once the program is launched, you may click 'Help' or 'how to use this window' in the program windows, for tips and information regarding each window of the program.


Equipment And Supplies
Help
How to use this window
Equipment And Supplies
Capital Items
Quantity required
Unit Cost
Total Cost
Examination couch 8 8 64
Lamp 8 8 64
Steriliser(boiler/autoclave) 8 8 64
Speculum 8 8 64
Swab Holding Forceps 8 8 64
Calculate
Total Cost For Capital Items R00 320. 00
Consumable Items
Quantity required
Unit Cost
Total Cost
Slides 8 8 64
Slide Mailers 8 8 64
Spatula/Cyto Brushes 8 8 64
Fixatives 8 8 64
Markers for Labeling Slides 8 8 64
Calculate
Total Cost For Consumable Items R00 320. 00
Total Cost For Equipment/Supplies R00 640.00
Enter the quantities and costs of your line items as informed by your equipment audits and as required for your target beneficiaries. You must enter the required information and click 'calculate' for each block in this window, for the program to give you the total cost for this component or resources. Print the screen and click 'Next' to the next window.

Enter the quantities and costs of your line items as above in all the windows that follow and click ‘Calculate’, then print the screens as you go for your record and click ‘Next’ to proceed to the next window.

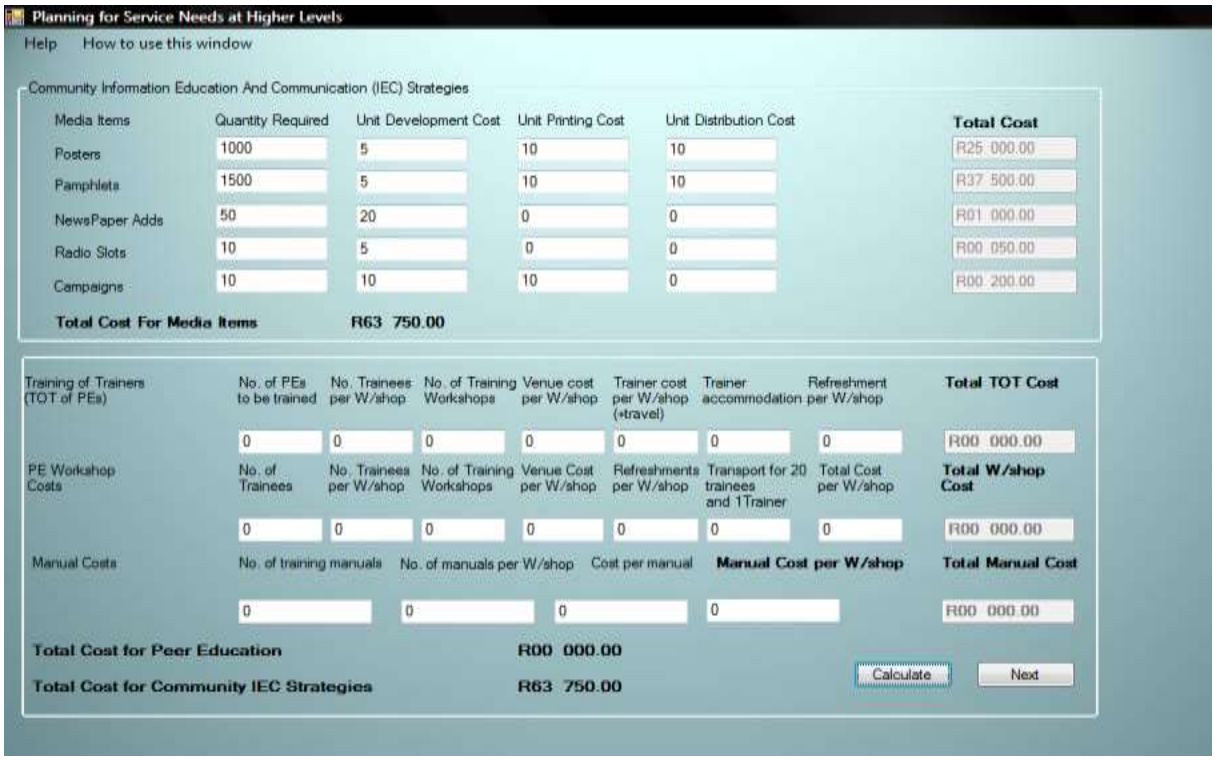


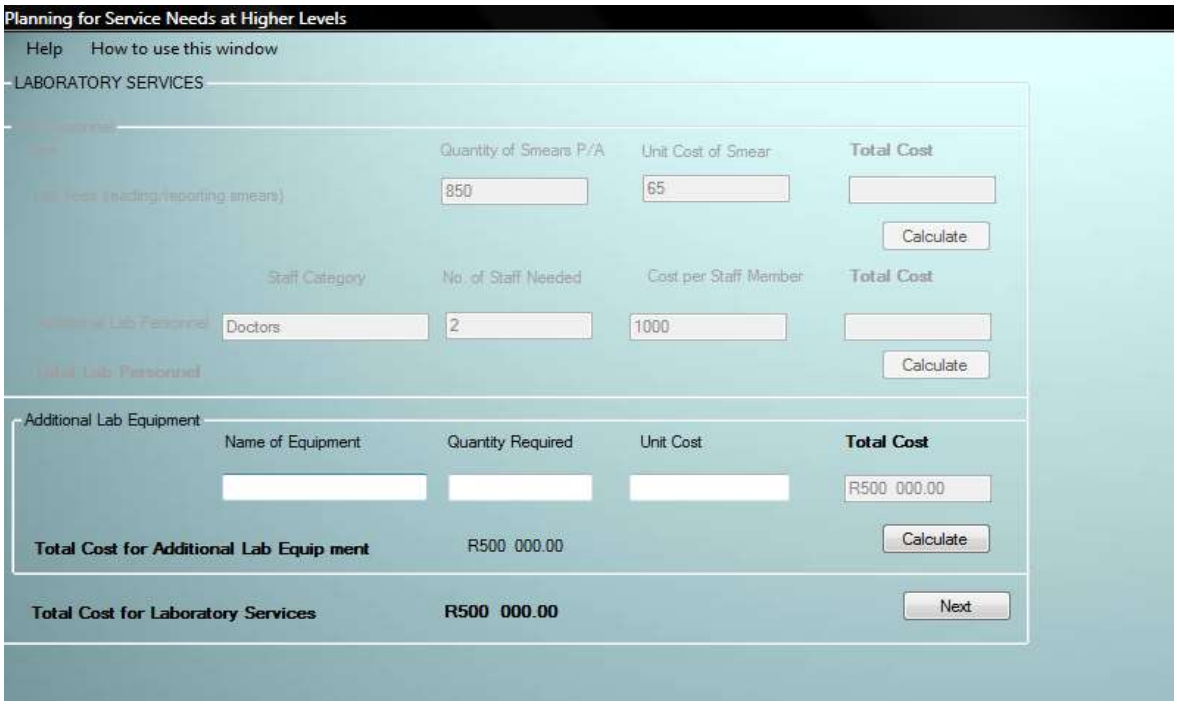




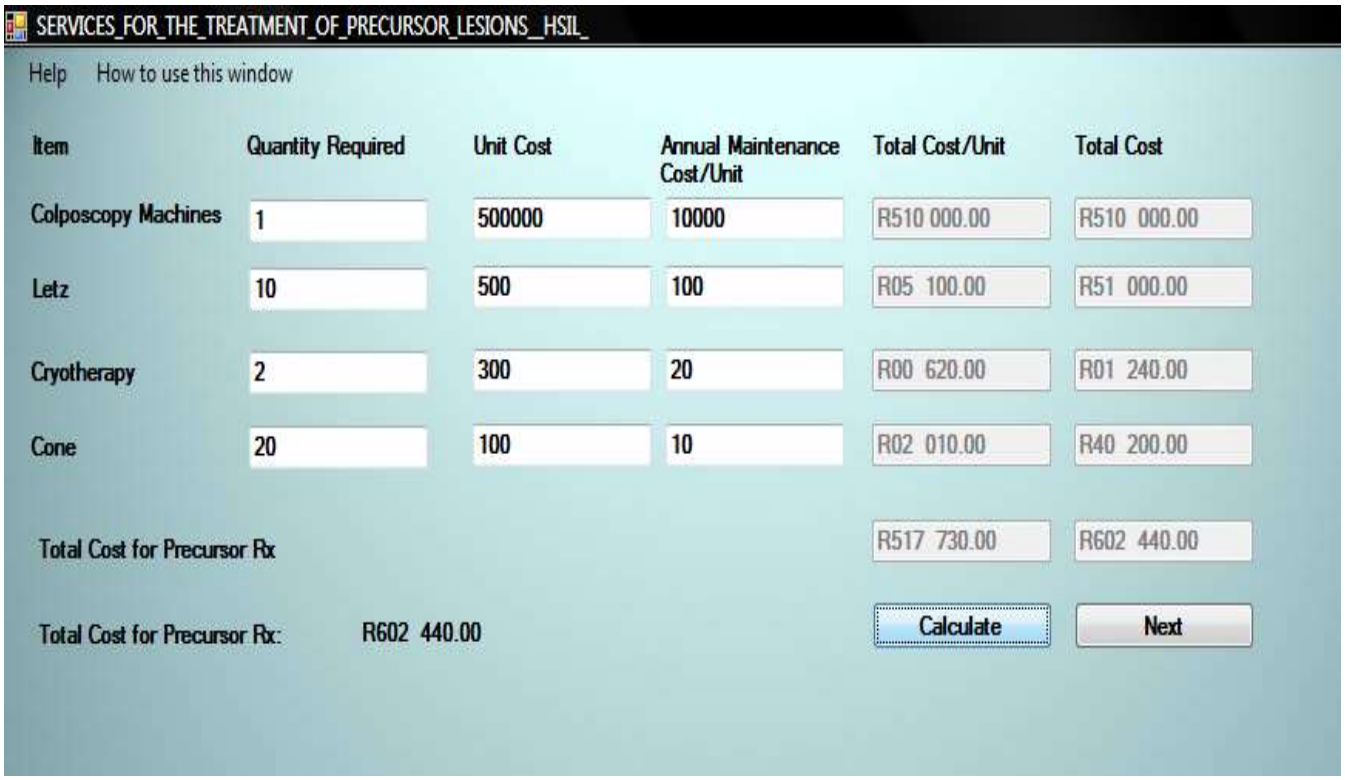
At this point, it may not be necessary for some managers to proceed to estimating budget for services that are accounted for at higher levels (e.g., laboratory services accounted for at the province), thus the program provides an option to finish estimations here. However, you can proceed to make further estimations as required. If this is the case, do not click 'Finish', but click 'Next' to proceed. You may enter a Zero in cells for which you do not need to estimate budget.

Note: Once the number of providers to be trained is entered, the budget program calculates the number of training sessions, based on 15 as a maximum number of participants per session.





Note: In the window above, the program will clear a cell once the category of 'additional lab personnel' is calculated, allowing for more personnel categories to be entered and calculated. Similarly, the cells will clear up once the names for 'additional lab equipment have been entered and calculated, allowing for estimates for more equipment to be calculated.





This is the end of your annual budget estimate. The Total Annual Budget displayed is what you will need for all the resources that you have estimated budget for. Print the screen before you click 'Exit'.

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/49 Kawonga/Robertson

CLEARANCE CERTIFICATE **PROTOCOL NUMBER** M01-06-14

PROJECT Implementing Cervical Screening As Part Of National Health Care Services In South Africa

INVESTIGATORS Dr/Ms M/E Kawonga/Robertson

DEPARTMENT School of Public Health, Wits Medical School

DATE CONSIDERED 01-06-15

DECISION OF THE COMMITTEE *

Approved unconditionally

DATE 01-10-19 **CHAIRMAN** .....(Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

c c Supervisor: Dr S Fonn
Dept of Women's Health Project, NCOH

Works2\lain0015\HumEth97.wdb\M 01-06-14

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DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE .....SIGNATURE .....

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES