

WHY NOT A NURSE DEMOGRAPHER?

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INTRODUCTION

Populations of school children can be utilised for the screening of ill-health such as ophthalmic (Köhler *et al*, 1981: 369-77) and aural (Mc Dermott, 1982: 462-8) conditions, heart disease (Okuni, 1982: 1250-4), scoliosis (Lonstein *et al*, 1982: 481-8) or dental caries (Rebich *et al*, 1982: 50-53), with the sole object of clinical intervention. The target population is aimed at all belonging to a defined risk group, usually described in terms of age, sex, ethnicity and occupation.

Whereas screening is an ongoing process, surveys are isolated exercises directed at wider populations in order to detect the magnitude of a problem with the long-term objective of planning or screening. Intervention does not accompany surveys. Such surveys are essential for health planning and usually denote the point prevalence of chronic problems such as trachoma (Ballard *et al*, 1979: 113-120), dental caries (WHO, 1977), malnutrition (Leary, 1969: 1170-74), intestinal helminthic infestations (Schutte *et al*, 1981: 137-41), bilharzia (Visser, 1984: 124-27), school girl pregnancies (Craig, 1983: 452-55) and tuberculosis (Fourie, 1981).

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OPSOMMING

Die skrywer glo dat opnames onder hoërskoolleerlinge waardevolle demografiese inligting kan voorsien. Die uitvoerbaarheid hiervan is in die veld getoets.

In die bespreking van die bevindings stel die skrywer 'n stelsel vir die registrasie van geboortes en sterftes in nasionale state voor waarin die gemeenskapsverpleegkundige en plaastlike kliniek gebruik word. Watter wyse van registrasie ook op besluit word kan dit koste-effektief evalueer word deur roetine opnames by hoërskole vir noodsaaklike demografiese inligting.

Dit word voorgestel dat die verpleegkundige-demograaf die betroubaarheid van die gegewens in al die noodsaaklike geboorte, mortaliteits- en morbiditeitskoerse kan verseker.

Screening tests and surveys have also been employed by the De Lange report in compiling a blue print for school health services in South Africa (Raad vir Geesteswetenskaplike Navorsing, 1981).

In demographically young populations, such as that of South African Blacks (Central Statistical Services, 1980: 1-4), a very large proportion of households will contain schoolgoing children (Jeanneret, 1976: 101-7). The high school group should be able to furnish valuable demographic information such as recent births or deaths and the prevalence of existing disability or chronic illness.

If this information were gathered at the beginning of each year as an ongoing screening procedure, the community health nurse could visit the positive replies to ascertain whether the births and deaths had

actually been registered or whether disabilities and chronic illnesses were receiving attention. In this way tedious door-to-door active surveillance could be reduced or eliminated. Turning the above premises into a hypothesis it was decided to test its feasibility under actual field conditions.

POPULATION AND METHOD

The largest high schools in each of the two Black townships of Tembisa and Katlehong on the East Rand were selected. Each child completed a questionnaire under the direct supervision of one of the two nursing authors. Prior permission was obtained from the principal and each questionnaire was checked for omissions immediately upon completion. It took less than 10 minutes for most pupils to complete a computer orientated questionnaire. (Samples are available upon request).

The application of the information contained within the questionnaire was fully explained to each class beforehand, as well as the fact that for survey purposes anonymity would be guaranteed as the questionnaire made no provision for name or address. Because of the method employed, the return for all pupils present on that day, was 100%.

Demographic parameters enquired into, consisted of any deaths or births which occurred during the previous calendar year at the household where the scholar lodged, whether it was the parental home or not. The presence of any cripple, spastic, mentally retarded, epileptic, deaf or blind person in the same household was also investigated.

RESULTS

The results are depicted in table 1. The characteristics of a demographically young population are immediately evident in the high frequency of both deaths (9,8% and 9%) and births (18,1% and 15,4%).

The frequency of epilepsy (4,8% and 4,1%) is very high and immediately identifies it as an important community health problem. The frequency of crippledness, blindness, mental retardation and deafness remained below 4%.

The presence of one or more siblings at the same school occurs frequently (34,4% and 20,0%), again as could be expected. The widely differing proportion of pupils with siblings at the two schools ($X^2 = 53,67$; $P < 0,05$) remains unexplained.

School A pupils had relatively more blind people at their place of residence ($P < 0,05$) and school B more mentally retarded persons ($P < 0,05$) respectively. These differences are purely statistical, however, and may be well within the normal range of biological variation.

Births, deaths, epilepsy, crippledness and deafness seem to occur with the same frequency at both schools ($P < 0,05$).

DISCUSSION

The reliability (repeatability) of the survey will be partly indicated by the similarities and differences in results obtained from the two schools, as already discussed. Although it is difficult to prove, the authors feel that where differences do occur, they are due to true variations in the two populations rather than to methodological error.

Validity (specificity), will be reflected in the number of false positives. As no likely motive can be advanced as to what benefit would accrue to a pupil if he made a false positive report, specificity can be considered to be near absolute. Once positive replies are followed up, false positives will in any case become apparent immediately.

Validity (sensitivity), however, may prove to be a real problem as, for example, political motives may exert pressure on a scholar to withhold information. As the number of false negatives can only be ascertained by door-to-door surveys, which is exactly what one tries to avoid, it seems more sensible to counter it through better health education and by demonstrating that follow-up is for the benefit of the sick or newborn, and never for legal sanction.

Another strategy which can be followed is to compare the replies of siblings with each other for consistency. It was not done in this series because of the strict criteria maintained for the reservation of anonymity. For further information on the execution and interpretation of health surveys the excellent work of Abramson may be consulted (Abramson, 1979).

The prevalence of chronic disabling conditions, expressed as a percentage of the total Black population, amongst South African Blacks as gathered during the 1980 census (Central Statistical Services, 1980: 375), was as follows: mentally handicapped (0,20%); Blindness (0,10%); deafness (0,05%) and crippledness (0,26%).

The figures of the survey and the national census can of course not be compared as the school children do not constitute a representative sample of the community and also because for each additional sibling the same information is duplicated.

Births are registerable under the Births, Marriages and Deaths Registration Act No. 81 of 1963, as amended, and notifiable under regulations promulgated in terms of the *Public Health Act No. 36 of 1919, as amended* (Section 133(1)).

Table 1: Results of demographic survey at two Black high schools in the East Rand

	SCHOOL A		SCHOOL B	
	Number	Percentage	Number	Percentage
Number of pupils present	1047	100,0	1057	100,0
Proportion of pupils with a sibling at same school	360	34,4	211	20,0
Proportion of pupils boarding with parents while attending school	948	90,5	877	83,0
Proportion of pupils in whose household any deaths occurred	103	9,8	95	9,0
Proportion of pupils in whose household any births or stillbirths occurred	190	18,1	163	15,4
Proportion of pupils in whose household any person with epilepsy resided	50	4,8	44	4,1
Proportion of pupils in whose household any crippled or spastic person resided	26	2,5	28	2,6
Proportion of pupils in whose household resided a person(s) with mental retardation	18	1,7	42	4,0
Proportion of pupils in whose household a blind person resided	22	2,1	10	0,9
Proportion of pupils in whose household a deaf person resided	14	1,3	17	1,6

Figure 1 Proposed diagram for the reporting of live births in the national states

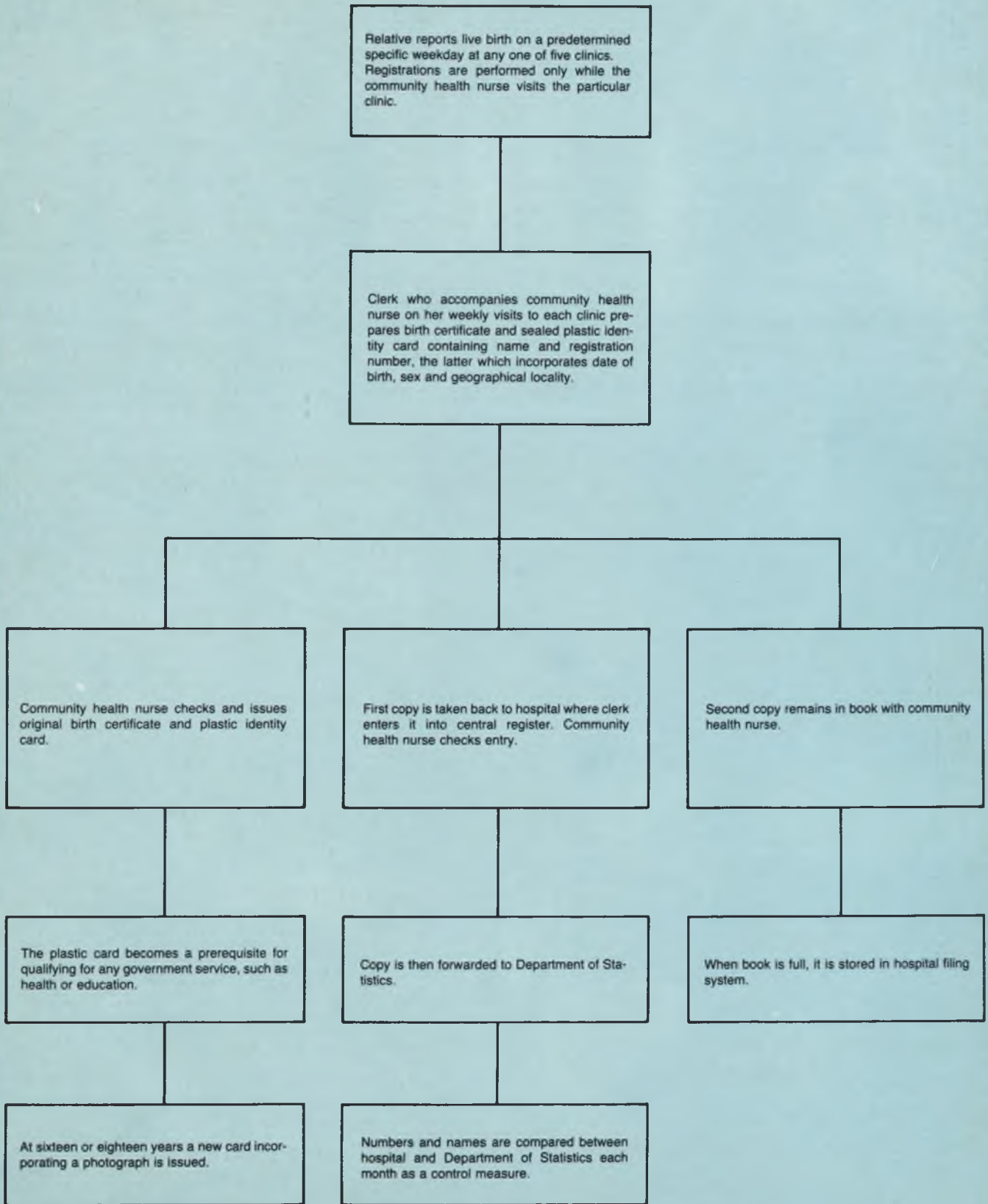
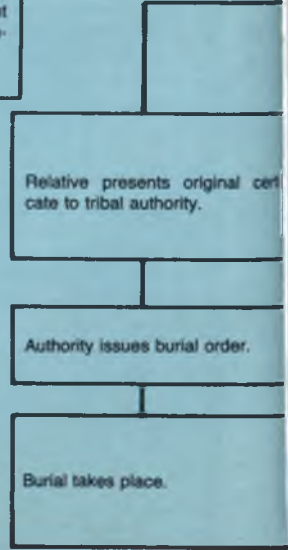
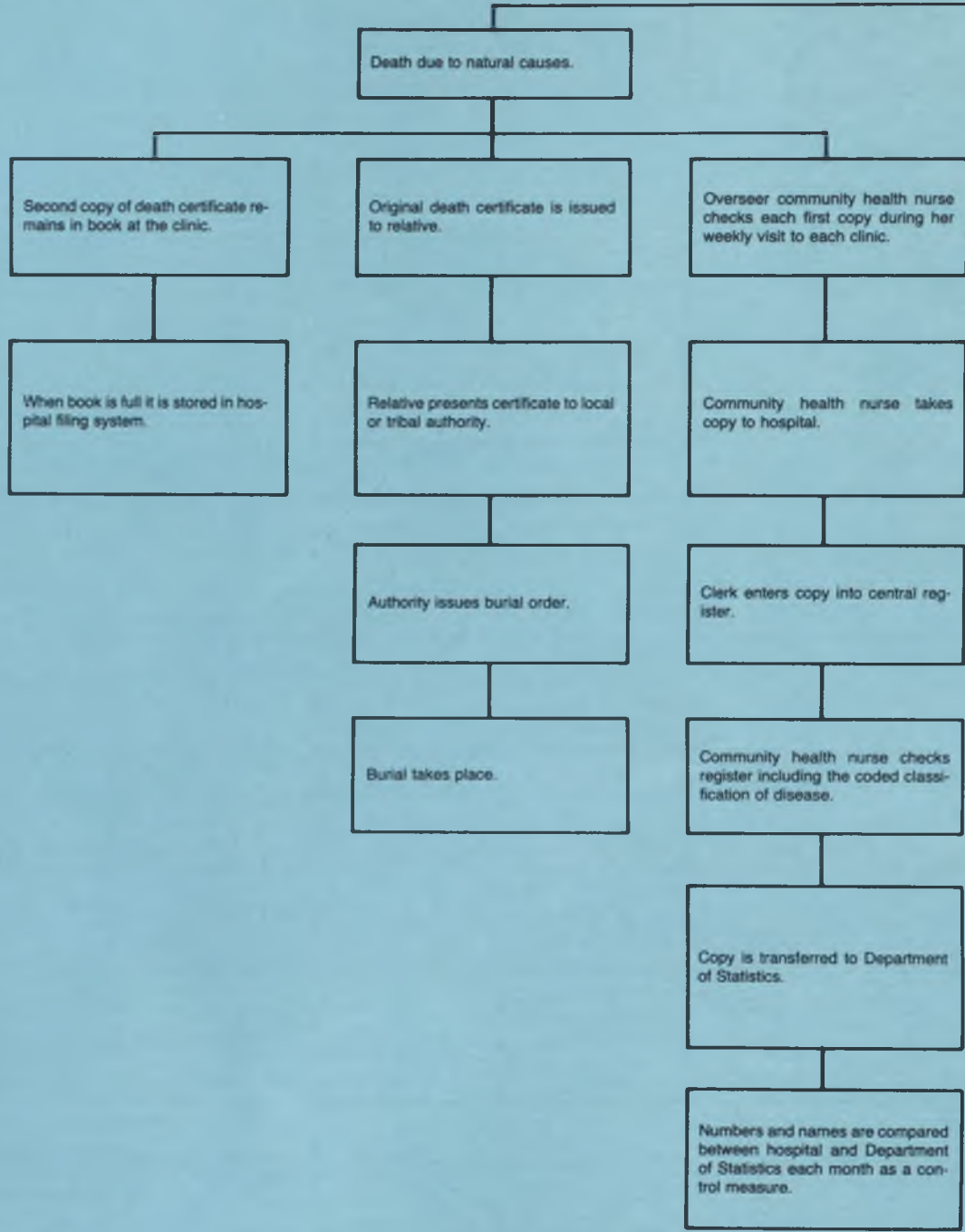
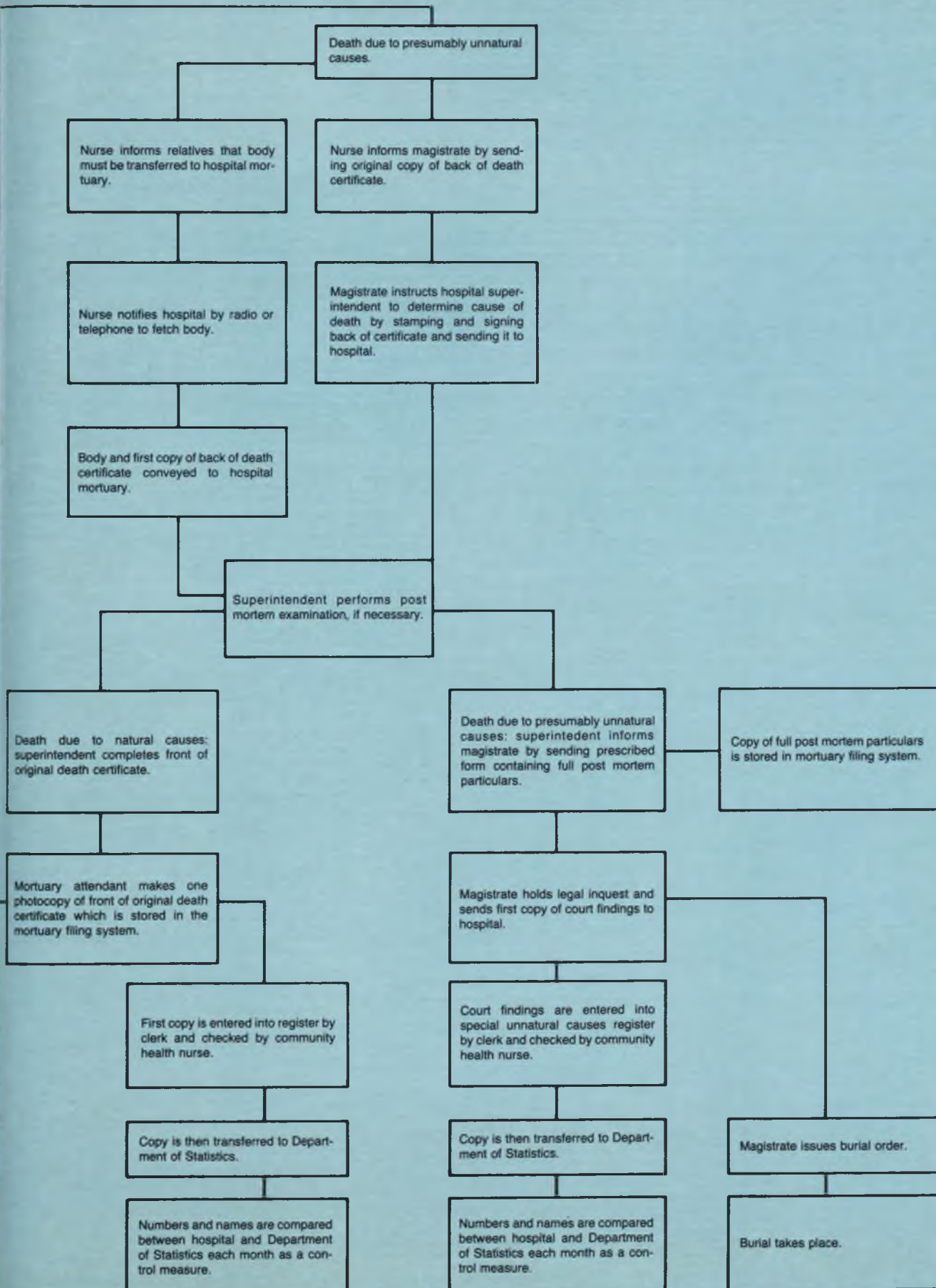


Figure 2 Proposed diagram for the reporting of deaths or stillbirths in the national states

Relative reports death or stillbirth to clinic nurse in charge.



Only stillbirths with a mass of 500 gm and above are registered. The procedure is identical to that of deaths, but separate certificates are issued and separate registers are kept.



In 1977 these regulations became invalid because the said Act contained no clause authorising the promulgation of such regulations. Local authorities petitioned the Government to reinstate the necessary enabling clauses which resulted in the *Health Amendment Act No. 21 of 1983* (Section 33(2)).

No regulations regarding the compulsory notification of births have as yet been promulgated under the *Health Act No. 63 of 1977, as amended*. During the period of invalidity large local authorities in the Transvaal continued to notify births under the *Local Government Ordinance No. 17 of 1939, as amended* (Section 165).

The present state of affairs is clearly unsatisfactory and it seems logical to register births and deaths in the national states under health legislation only, for the reasons given below.

- The Department of Health and Welfare, which deals directly with the act of birth or death, will effect registration.
- The nurse, rather than a policeman or other official, is more capable of ascertaining the cause of a natural death. Presently a large proportion of deaths is attributed to unknown causes (Wyndham, 1981: 411-9).
- Clinics in the national states are geographically better distributed than police or magisterial offices where registrations are at present effected.
- Registration of births can be coupled with the right of access to health services or schools, rather than to a penalty clause, thus introducing a positive incentive.
- more accurate denominators, available within a shorter time span, will enable authorities to calculate vital statistics more precisely for the purpose of planning and evaluation.

- Cheap portable apparatus is now available for transferring a name and number, containing sex, date and place of birth to a plastic card, thus making it possible to finalise registrations, even at peripheral clinics. At 16 or 18 years of age a photograph can be added. Cards should serve only two functions, that is registration of birth and identification. Formal birth registers can be kept at the ward hospital level. A fee just sufficient to cover costs should be levied. A proposed model flow diagram appears in Figure I.
- In the national states death certificates could be issued by the clinic nurse in charge after which local or tribal authorities can issue a burial order. Deaths from unnatural causes could be referred directly to the ward hospital for legal *post mortem* and the magistrate informed by completing the back of the death certificate form. Amendment of the existing legislation will of course be necessary, but only negligible changes will be required in the *Inquests Act No. 58 of 1959* as amended. Doctors attending patients during their terminal illness will continue to issue death certificates as before. A model flow diagram appears in Figure 2.
- In the national states hospital superintendents have taken over all the functions of the district surgeon, rendering the latter post obsolete. Most doctors, however, dislike performing autopsies. Medico-legal examinations at a hospital should be undertaken on a voluntary, rotational basis with a fixed (modest) fee attached to each completed *post mortem*, all other medico-legal work being part of the normal job routine of each salaried physician without remuneration.

CONCLUSION

It is proposed that routine screening of high schools for essential demographic information on an annual basis, as described before, will be a

cost-effective evaluation tool for whatever form of registration is finally decided upon by the legislator. This method of active surveillance can be applied in both rural and urban situations.

The nurse epidemiologist has long since proven her worth. Surely the nurse demographer is capable of ensuring that at long last one will be able to believe the denominators contained within all our essential natality, mortality and morbidity rates?

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