WILMS TUMOUR IN SUB-SAHARAN AFRICA: *A LITERATURE REVIEW*

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BACKGROUND

- Childhood cancer is neglected within global health and global surgery
- **Aim 1: Identify key topics covered by the SSA Wilms literature**
- Wilms tumour is a common paediatric tumour
- *Majority curable – very chemosensitive*
- *90% survival in high income countries (HIC)*
- *Reported 11-50% survival in sub-Saharan Africa (SSA)[1]*
- *Black-African children have a higher risk of developing Wilms tumour[2]*
- **Aim 2: Analyse the global research activity on SSA Wilms tumour**
- Volume of medical research does not correlated with regions with greatest clinical need[3]
- Control of research by SSA countries essential for maximizing benefit and avoiding scientific colonialism[4]

METHODS

- Publications retrieved from Embase and MEDLINE (Fig 1)
- Search terms: Nephroblastoma OR Wilms OR Wilm
- Africa south of the Sahara OR Sub-Sahara* OR [name of every SSA country]
- Limits: Article or review; English language; paediatric; 1950-2018
- Exclusion criteria: Non-Wilms exclusive cohort
- Aim 1: Country of publication, country of population studied, and year of publication date were extracted and analysed.
- Aim 2: Thematic analysis was carried out

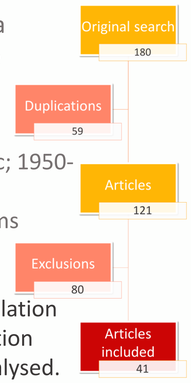

Fig 1: flowchart of article inclusion

RESULTS

AIM 1: KEY THEMES IDENTIFIED

1. Late presentation

- *13 publications*
- *Children present with advanced disease (stage III/IV) due to delayed presentation*
- *Many papers have ascribed this to poverty, lack of education, and lack of experienced staff to diagnose early*

Kenya: *"Earlier diagnosis would reduce disease-related deaths as numbers of unresectable disease and relapse are high."*[5]

2. Incomplete treatment

- *11 publications*
- *Children often are unable to complete treatment or attend follow up*
- *Factors contributing to this are: difficulty in travelling to treatment, long wait times, and lack of communication of what to expect from treatment*

Nigeria: *"The most significant variables which positively influenced the outcome were presentation at earlier stages … and completion of therapy"*[6]

3. Inaccessible treatment

- *14 publications*
- *Children are often unable to access the appropriate treatment due to*
  - *Cost of drugs and investigations*
  - *Presence of facilities/staff*
  - *Toll of travelling to treatment*

Rwanda: *" The cost of transport, investigations and drugs were recorded as main contributing factors to the feasibility and cost of the treatment in 80% of the responses"*[7]

AIM 2: GLOBAL RESEARCH ACTIVITY

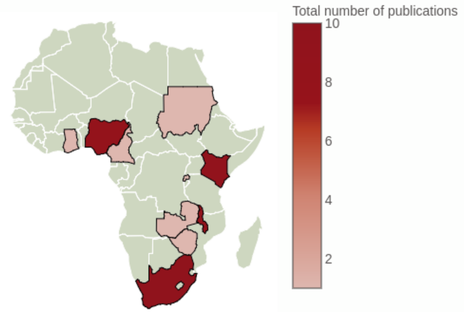

Fig 2: Choropleth map showing the number of publications studying each country's population

Populations studied

- Only 10 sub-Saharan countries' populations studied in a Wilms tumour exclusive cohort (Fig 2)
- *South Africa (n=10), Kenya (n=9), Malawi (n=9), Nigeria (n=8), Rwanda (n=1), Sudan (n=1), Zambia (n=1), Zimbwabe (n=1), Ghana (n=1), Cameroon (n=1)*

Country of department of publication	Country of departments of collaboration
South Africa (n= 10)	South Africa (n= 1)
Nigeria (n= 7)	Ghana (n= 1)
Netherlands (n= 9)	Netherlands (n= 4)
Zimbabwe (n= 1)	India (n= 1)
Rwanda (n= 1)	UK (n= 3)
Malawi (n= 5)	Malawi (n= 5)
Kenya (n= 2)	Kenya (n= 1)
USA (n= 3)	Cameroon (n= 1)
Sudan (n= 1)	

Table 1: Table showing the distribution of departments of publication and departments of collaboration (non-lead co-authors). Lines between columns show international collaborations between countries. Orange - SSA countries, blue - HICs, yellow – non-SSA LMICs.

Authorship and Collaboration

- Most publications (n=21) were from SSA departments with no international collaboration
- 13 publications were international collaborations
  - 7 of these papers were published by HIC departments
- 2 papers originating from one USA centre had no African authors

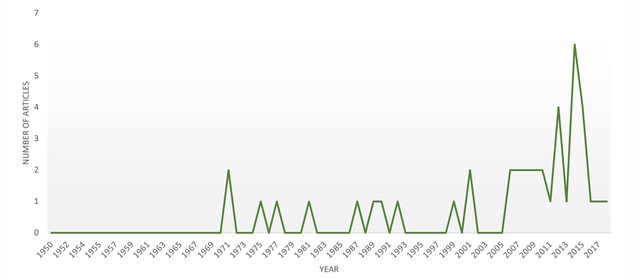

Fig 3: Graph showing the number of publications on a SSA Wilms exclusive cohort over the time period

Annual activity

- There has been an upwards trend of papers produced per year on a SSA Wilms tumour exclusive cohort (Fig 3)

CONCLUSION & THE FUTURE

Aim 1:

- 3 Barriers to good prognosis identified

1) Late presentation: leads to tumours too advanced for curative treatment and treatment-related deaths
2) Incomplete treatment: due to strained resources and lack of education
3) Inaccessible treatment: lack of affordable, local, and available drugs and facilities, especially chemotherapy.

- These barriers prevent children that would survive in HICs surviving

Aim 2:

- Literature on SSA Wilms tumour is sparse and does not include the majority of SSA countries
- The bulk of the research effort is SSA driven

The Future

- Improved access to chemotherapy through institutionalised approaches
- Development of affordable heath care and insurance
- Patient education and primary health care
- National research hubs
- Collaboration - both with global North and global South
  - Projects such as OXPLORE

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