OSCAIL

Organized Stroke Care Across Income Levels

Outline

- Stroke units: Do they improve post-stroke outcomes?

- The OSCAIL study:
  - Design
  - Organization
  - Data

- Next steps

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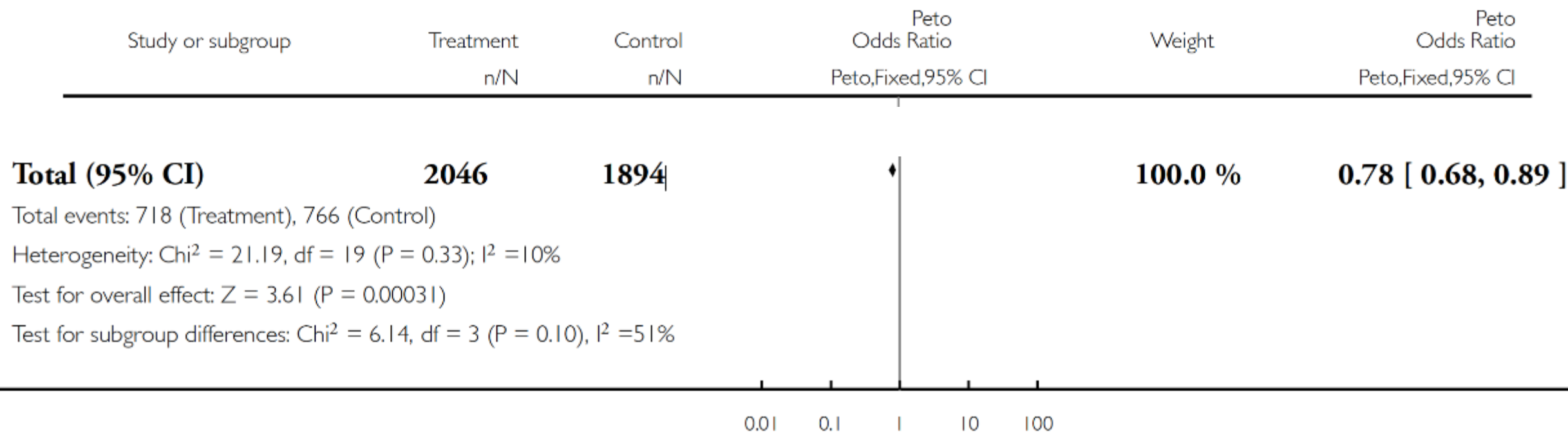HEALTH THROUGH KNOWLEDGE

Definition of a Stroke Unit
(Stroke Unit Trialists' Collaboration 2013)

Multidisciplinary team including **specialist nursing staff** based in a **discrete ward** cares exclusively for stroke patients. This category included the following subdivisions:

i) **acute stroke units** that accept patients acutely but discharge early (usually within seven days); these appear to fall into three broad subcategories:

- a) 'intensive' model of care with continuous monitoring, high nurse staffing levels and the potential for life support;

- b) 'semi-intensive' with continuous monitoring, high nurse staffing but no life support facilities; and

- c) 'non-intensive' with none of the above;

ii) **rehab stroke units** that accept pts after a delay, usually of seven days or more, and focus on rehabilitation; and

iii) **comprehensive** (i.e. combined acute and rehabilitation) stroke units that accept patients acutely but also provide rehabilitation for at least several weeks if necessary. Both the rehabilitation unit and comprehensive unit models offer prolonged periods of rehabilitation.

Stroke unit vs general medical wards: Death or institutional care

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Study or subgroup	Treatment n/N	Control n/N	Peto Odds Ratio Peto,Fixed,95% CI	Weight	Peto Odds Ratio Peto,Fixed,95% CI
Total (95% CI)	**2046**	**1894**		**100.0 %**	**0.78 [0.68, 0.89]**

Total events: 718 (Treatment), 766 (Control)

Heterogeneity: Chi^2 = 21.19, df = 19 (P = 0.33); I^2 =10%

Test for overall effect: Z = 3.61 (P = 0.00031)

Test for subgroup differences: Chi^2 = 6.14, df = 3 (P = 0.10), I^2 =51%

0.01   0.1   1   10   100

- Which are the most effective elements?

28 randomized trials; All from High/Middle Income Countries

Stroke Unit Trialists' Collaboration, 2013

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Stroke: Incidence in HIC vs LMIC

- Stroke is the second most common cause of death and disability globally
  - Mortality rates halved in HIC; only reduced 15% in LMIC
  - Disability rates??
- Patients in LMIC:
  - Are younger
  - Use more tobacco
  - Have more diabetes, hypertension, hypercholesteremia, obesity
  - Have higher rates of mortality
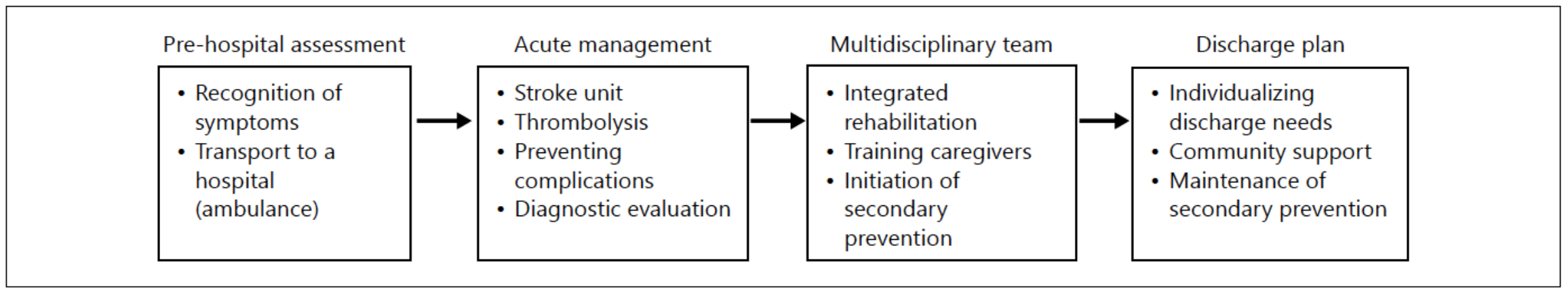- Can data from HIC be applied in LMIC?

Pandian, 2017

HIC, High Income Country; LMIC, Low or Middle Income Country

Fig. 2. Components of stroke-care services.

| Pre-hospital assessment	Acute management	Multidisciplinary team	Discharge plan
• Recognition of symptoms • Transport to a hospital (ambulance)	• Stroke unit • Thrombolysis • Preventing complications • Diagnostic evaluation	• Integrated rehabilitation • Training caregivers • Initiation of secondary prevention	• Individualizing discharge needs • Community support • Maintenance of secondary prevention

Fig

Table 2. Barriers at each level in the establishment of stroke care services in LMICs

Level of barrier	Type of barrier	Reference number
Pre-hospital	Lack of stroke helpline Insufficient infrastructure Unavailable/inadequate transportation facilities (Ambulance)	[12–14, 16, 18, 19, 25, 37]
Hospital triage	Under-resourced emergency departments Under-resourced imaging and radiologist	[38, 39, 41] [16, 32, 33, 35]
Stroke unit	Lack of neurologist/stroke experts in rural areas Lack of trained personnel High cost of drugs	[45, 48] [94] [45, 88, 92]
Post stroke care	Limited rehabilitation facilities Deficient numbers of physiotherapists speech therapist and occupational therapists	[94] [32]
Community support	Lack of social workers	[94]

Pandian, 2017

Potential Effects of Stroke Interventions

- Hypothetical effects:
  - 1M people, 2500 strokes/yr
- Number of extra independent survivors (mRankin 0-2)
- 1 year intervention
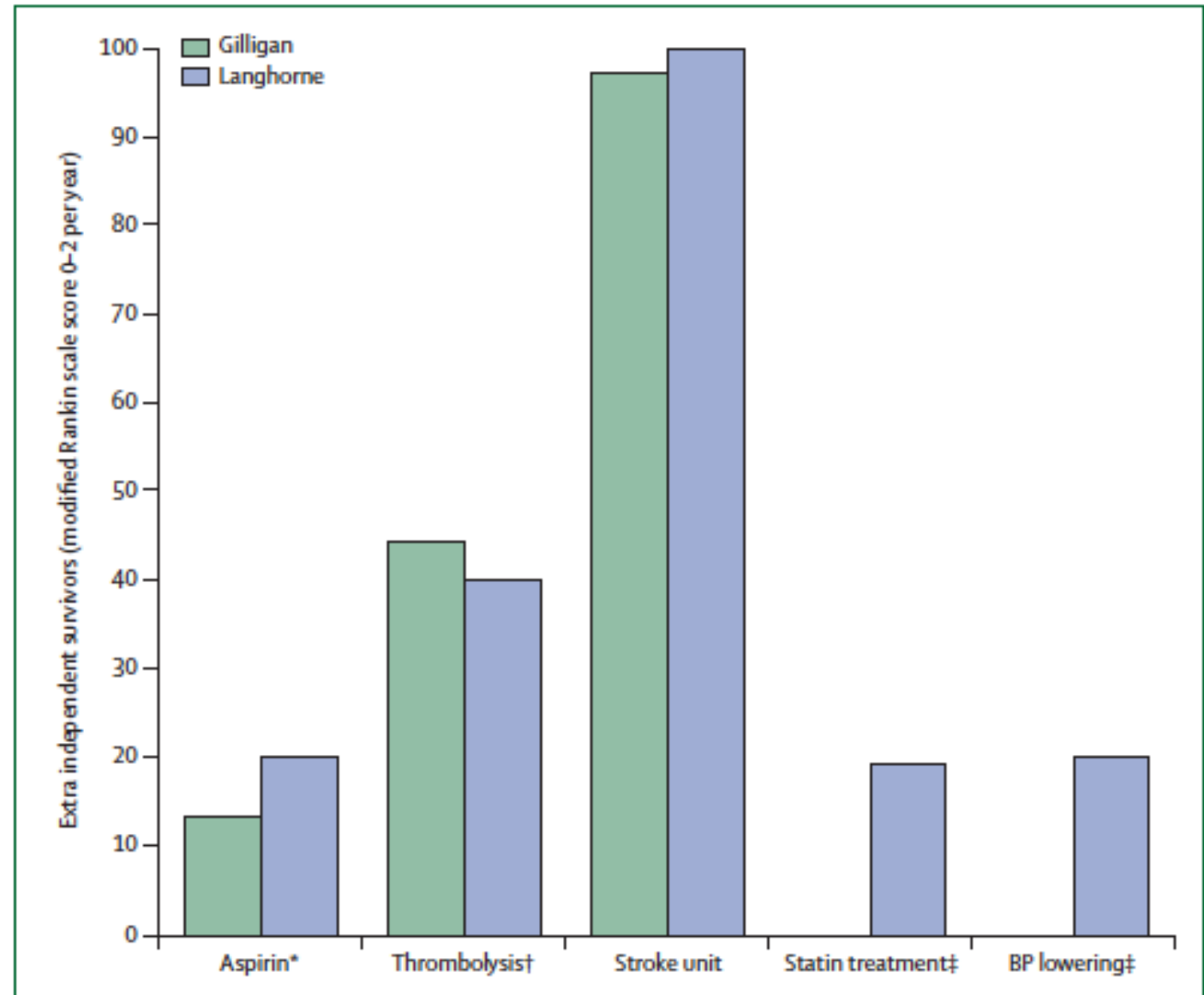
Langhorne, DeVilliers, Pandian, 2012

And so…

- The potential for improved post –stroke outcomes exists for LMIC

- Some of the barriers are known and include resources for:
  - Health care professions – doctors, nurses, therapists –inpt and community
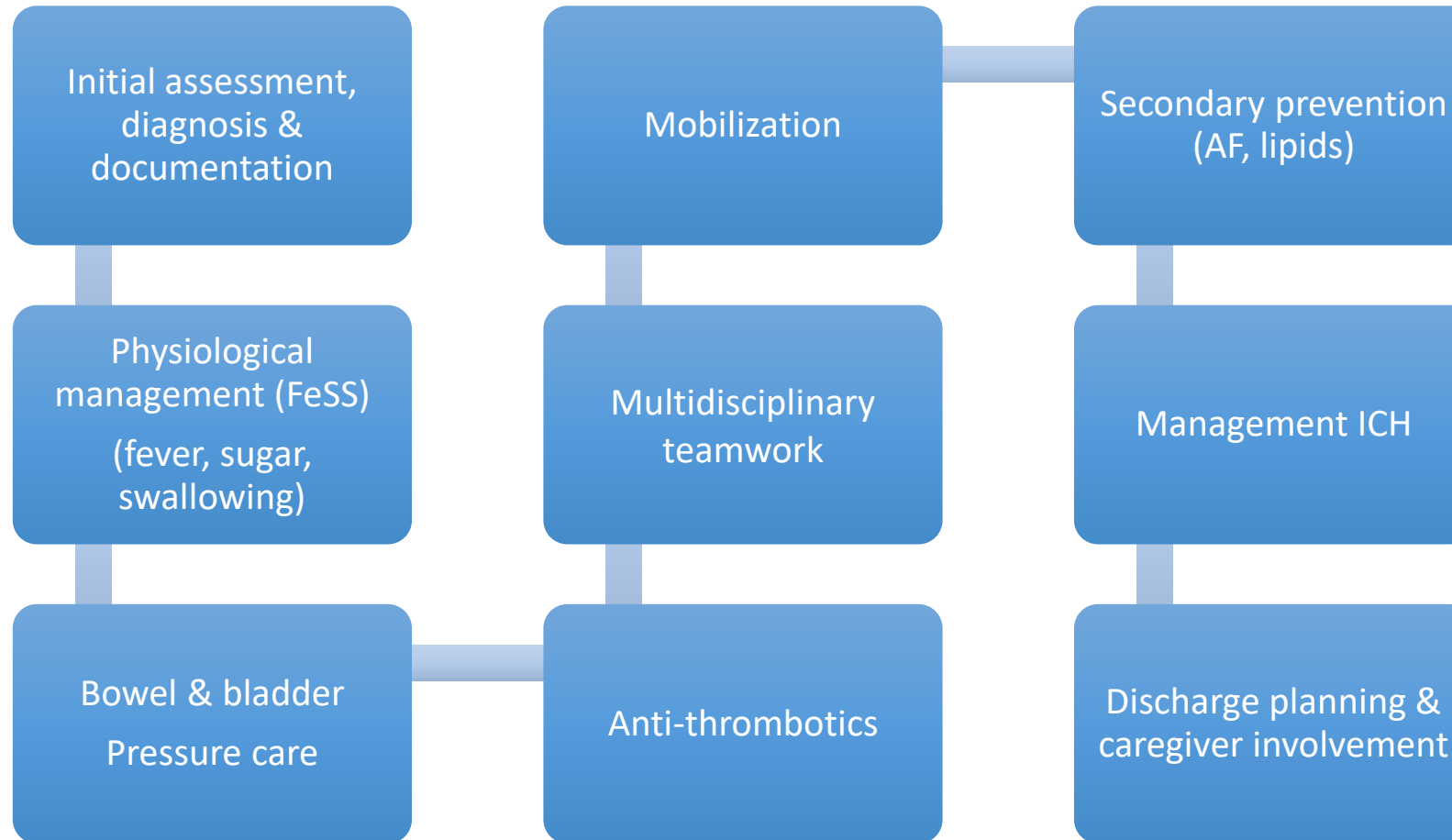 - Drugs
  - Equipment
  - Home support

  Now what?

OSCAIL: Can we implement key components of stroke unit care in low resource settings?

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Summary of Pilot Study Rationale

- Implementing key elements of stroke unit care may improve mortality and morbidity outcomes

- Effect may be largest in sites without Stroke Units

- To implement key elements, sites need to:
  - Obtain data on current practices to determine current practices
  - Identify gaps
  - Consider how to gaps can be addressed

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Key Performance Indicators

Initial assessment, diagnosis & documentation	Mobilization	Secondary prevention (AF, lipids)
Physiological management (FeSS) (fever, sugar, swallowing)	Multidisciplinary teamwork	Management ICH
Bowel & bladder Pressure care	Anti-thrombotics	Discharge planning & caregiver involvement

Change from a usual frequency of 5-12% (based on INTERSTROKE) to over 25% in each country (i.e. at least one in four patients)

OSCAIL PHASES

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PHASE		ACTIVITY	CONSIDERATIONS
PHASE I	Design the Intervention	Site Survey to Prospective Sites	Replaces survey to 20 INTERSTROKE sites
		Site Selection	All sites required by December 1
PHASE II	Pre-Trial Registry	Develop Took Kit Resources	Identify locally available resources
		Data Collection: Prescribed (Chart)	Requires enrollment of all stroke patients
		Data Collection: Consented	Requires ethics application
PHASE III	INTERVENTION	Implement Intervention	On site training?
		Data Collection: Process/outcome	
		Data Collection: Pt experience	
		Data Collection: Key stakeholders	Semi-structured interviews

Stepped Wedge Design - Ideal

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8 sites, 1,104 participants in total

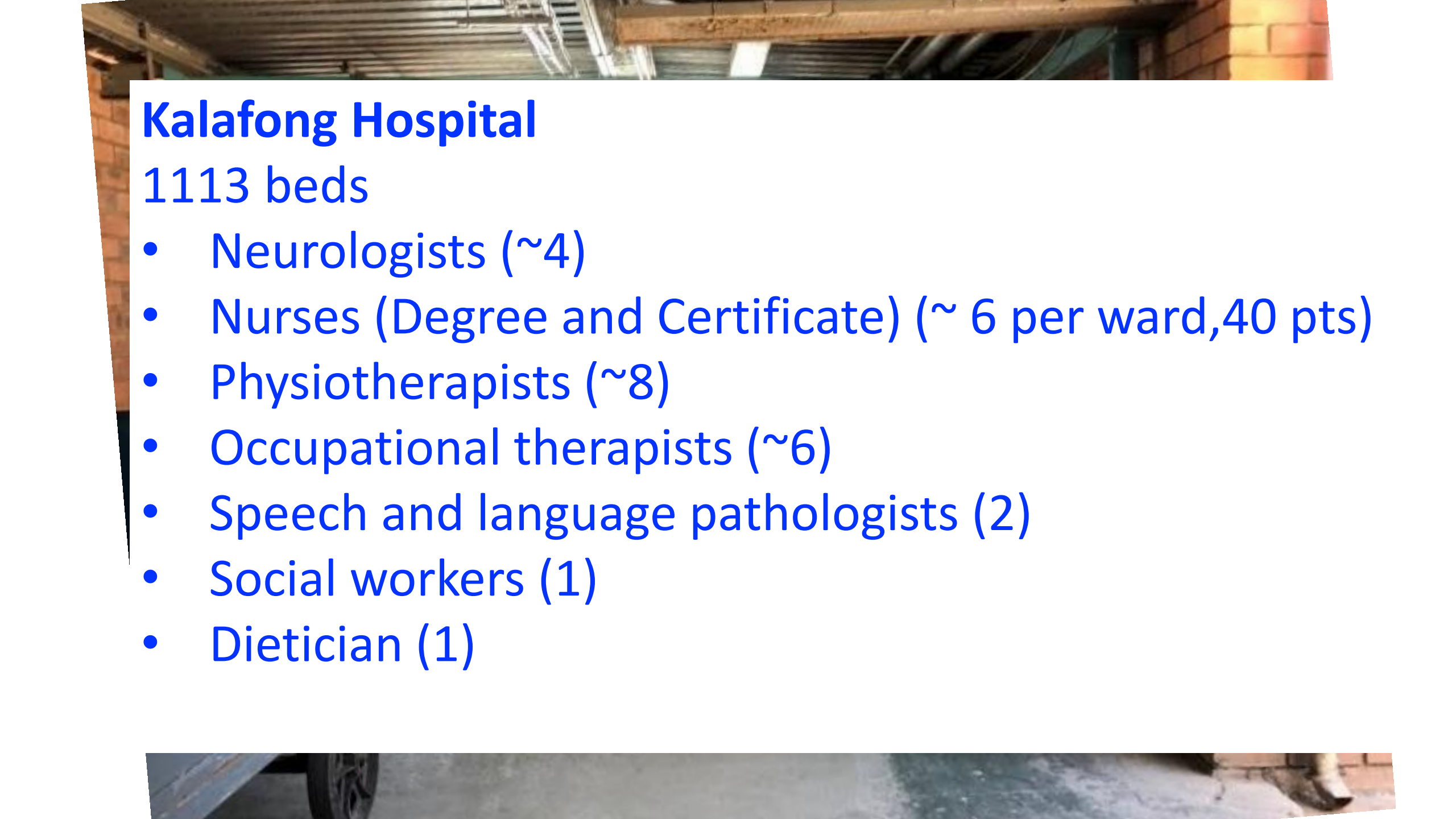| Site	2017											2018								
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	O	O	O	T	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I	I
2	O	O	O	O	O	O	T	I	I	I	I	I	I	I	I	I	I	I	I	I
3	O	O	O	O	O	O	T	I	I	I	I	I	I	I	I	I	I	I	I	I
4	O	O	O	O	O	O	T	I	I	I	I	I	I	I	I	I	I	I	I	I
5	O	O	O	O	O	O	O	O	O	O	O	O	O	T	I	I	I	I	I	I
6	O	O	O	O	O	O	O	O	O	O	O	O	O	T	I	I	I	I	I	I
7	O	O	O	O	O	O	O	O	O	O	O	O	O	T	I	I	I	I	I	I
8	O	O	O	O	O	O	O	O	O	O	O	O	O	T	I	I	I	I	I	I

O = observation; T = training; I = intervention

South Africa

Kalafong Hospital
1113 beds
- Neurologists (~4)
- Nurses (Degree and Certificate) (~ 6 per ward,40 pts)
- Physiotherapists (~8)
- Occupational therapists (~6)
- Speech and language pathologists (2)
- Social workers (1)
- Dietician (1)

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Recruitment

Country	Site	Observation N	Intervention N	TOTAL N
S. Africa	301	102	70	172
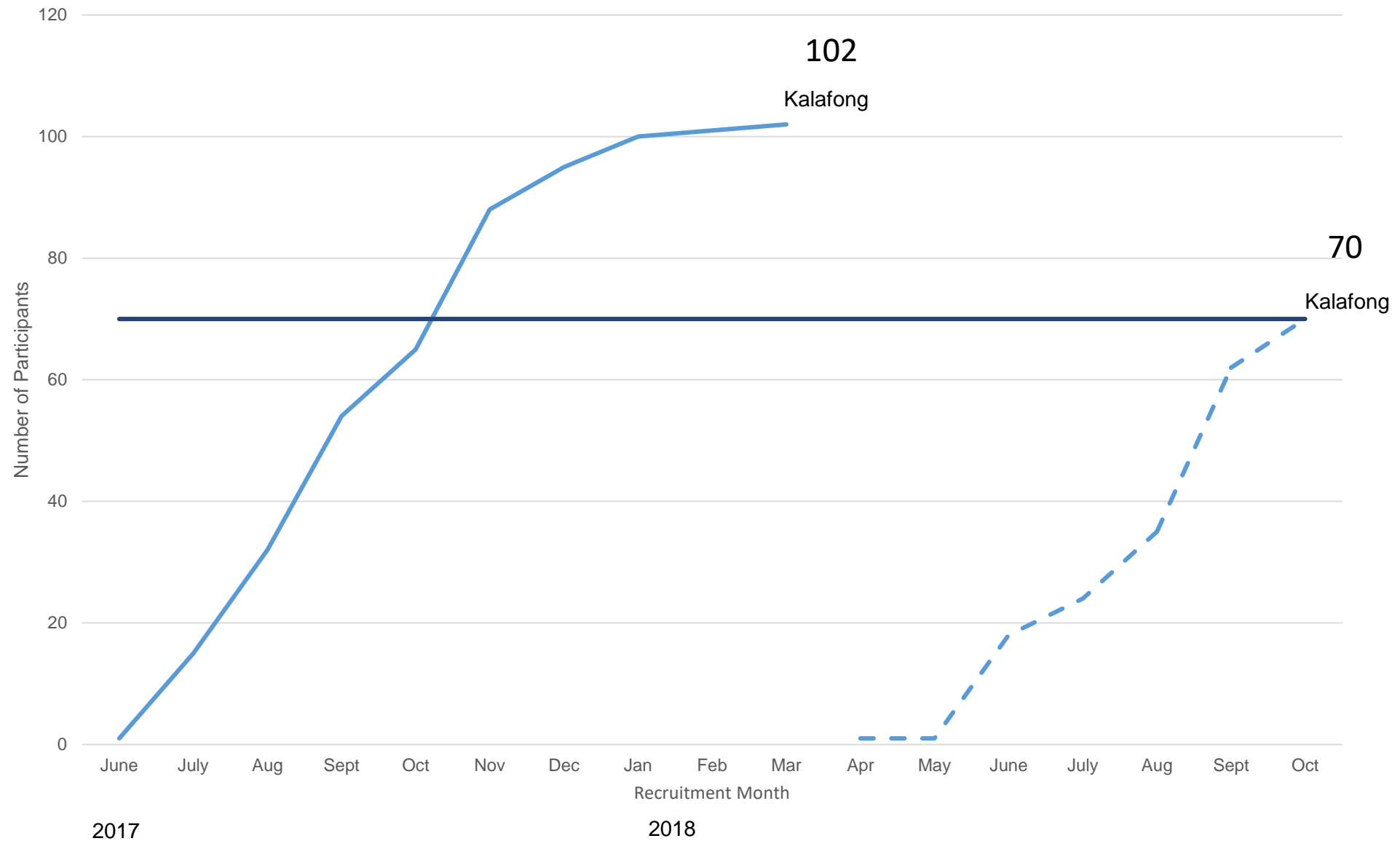
Lessons

- Recruitment
  - Finding stroke patients when there is no systematic method for admission
  - Documentation

Training

- Modules based on best practices for key performance indicators
  - Web portal

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HOME   ABOUT OSCAIL   KEY STROKE INTERVENTIONS   TRAINING MODULES

Training Modules

OSCAIL STUDY OVERVIEW

**OSCAIL STUDY
OVERVIEW**

MODULE OVERVIEW

STROKE UNITS: THE
BASICS

Welcome to the OSCAIL project!

We are a team of researchers from Canada, UK, Ireland, Rwanda, South Africa,
Uganda, and India working towards improving acute stroke services in low- and middle-
income countries.

...prove communication between health care staff,
...eive, and identify novel methods of stroke care
...in each hospital. All health care staff, including
...ational therapists, administrators, and anyone

...rview of the OSCAIL study. Thank you for your

What is early mobilization?

Getting patients up and moving in
24-48 hours after stroke

...zed Stroke Care
...e Levels (OSCAIL)
...tudy

...lti-centre trial to study the
...key elements of stroke units

Intervention Training, Kalafong Hospital, South Africa
January 2018

Training

- Modules based on best practices for key performance indicators
  - Web portal
  - In person training on site

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Organised Stroke Care

Training Agenda

Kalafong Hospital, Attridgeville
18-19 January 2018

On Site Training

	Thursday			
Time	**Venue**	**Topic**	**Relevance**	**Presenter**
10:15	Klinikala	Sign in and pretraining survey		
10:30		Overview of organised stroke care		
11:00		General approach to stroke care	Nurses	JB, LK
11:30	Wards	Bedside training		
12:45		Post training survey		
13:45		Sign in and pretraining survey	All	
14:00		Welcome, Introductions, Training Agenda and Goals	All	DvZ, LK
14:15		M1:The Importance of Stroke Units	All	PL
14:45	Klinikala 1-1	The OSCAIL study	All	JB
15:00		Preliminary findings and opportunities for improvement	All	LK
15:15		M2: Multidisciplinary Teams	All	LK
15:45		Post training survey, summary and overview of tomorrow's training	All	
16:15		M3: Recognition of strokes	Drs	PL, JH

	Friday			
Time	**Venue**	**Topic**	**Relevance**	**Presenter**
08:00	OT Dept	Case studies and Q&A	OT, PT, ST	JB
10:00		Stroke support group		
11:00	Wards	M10: Bowels, bladder and pressure	Nurses	PL, JB
12:45		Post training survey discussion on the way forward	Nurses	
13:45		Sign in and pretraining survey	All	
14:00		M4: Swallowing	All	PL
14:30		M5: Early Mobility	All	JB
15:00		M7: Geographic stroke unit	All	PL
15:20	Klinikala 1-1	M8: Discharge planning	All	JB
15:45		Post training survey, summary and plans for additional training	All	
15:45		M9: Prevention of secondary strokes	Drs	PL
16:15		Tea and Post training survey (doctors)	All	
16:30		Next steps	All	

Presenters

PL	Prof Peter Langhorne, Glasgow University
JB	Prof Jackie Bosch, Mac Masters University
DvZ	Prof Danie van Zyl, Internal Medicine, Kalafong
JH	Dr Juliana Heisgen, Neurologist, Kalafong
LK	Dr Lynn Katsoulis, Local OSCAIL investigator

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Conclusions from Kalafong

- A web portal and an in-person training session are more effective than all other stroke interventions combined!

- Or
  - We raised awareness of an issue
  - Reporting bias is probable and difficult to estimate the amount
  - Not clear if a sustained effort is possible
  - No agreement for a designated stroke unit ….yet…..
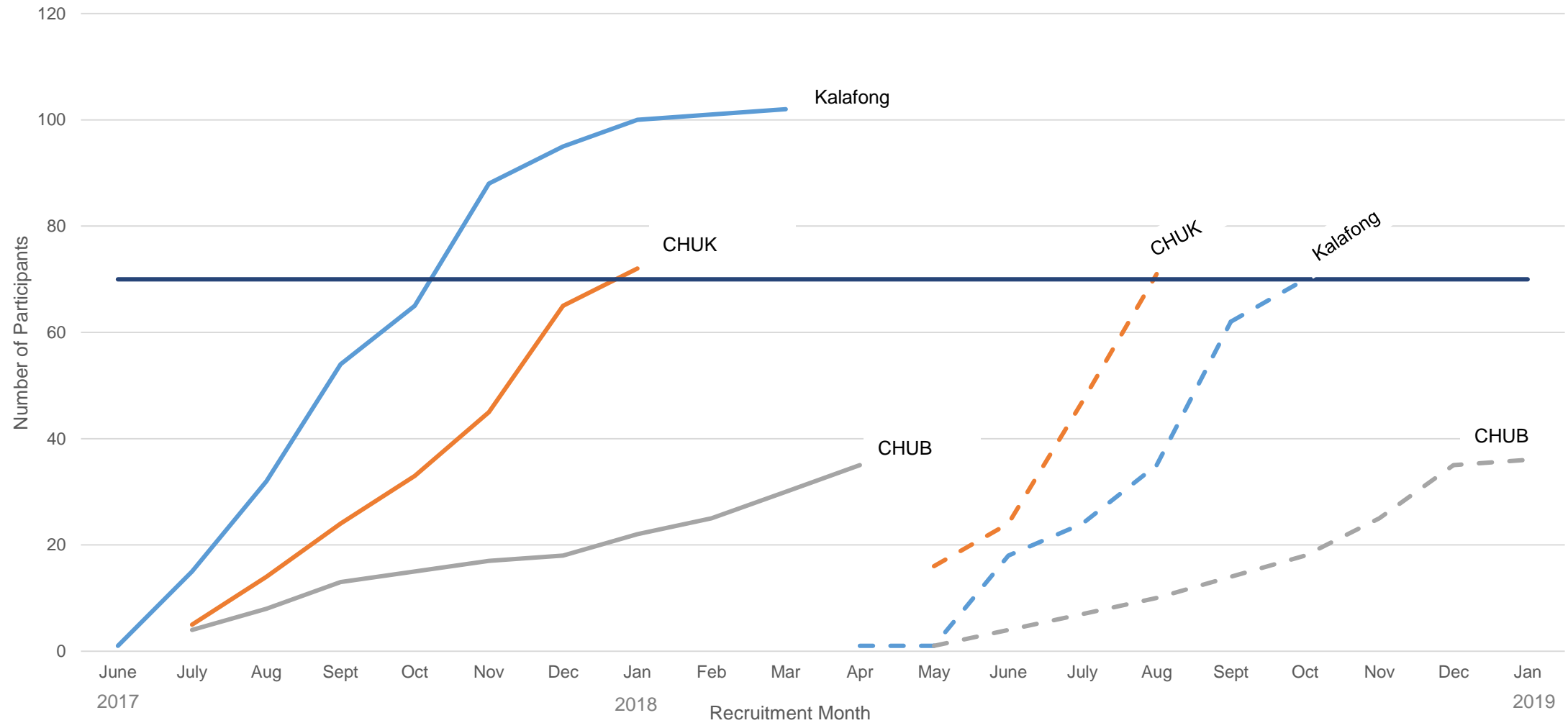
- Next time
  - More local involvement/leadership

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Rwanda

- National Champion:

    Gerard Urimubenshi PT

- Centre Hospitalier Universitaire de Kigali CHUK: 560 beds, 1 neurosurgeon, nurse: patient 1:20, ~ 8 PTs (outpt too), 0 OT, 0 SLP

- Centre Hospitalier Universitaire de Butare CHUB: 500 beds, 1 neurosurgeon, nurse: patient 1:20, ~ 6 PTs (outpt too), 0 OT, 0 SLP

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Recruitment

Country	Site	Observation N	Intervention N	TOTAL N
S. Africa	301	102	70	172
Rwanda	101	71	70	141
	102	35	35	4
TOTAL		**359**	**156**	**515**

Intervention Phase

- Portal use was available and encouraged, but not relied upon

- On site training simultaneously for both hospitals
  - First time nurses, doctors and therapists attend training together

- More locally lead presentations

Preliminary Conclusions

- Good, but did we change documentation or practice?

- Good, but is it sustainable?

- The majority of patients' time is in the community, but treatment is focused in hospital
  - Proposal to the Ministry of Health to start data collection in the community to determine prevalence, incidence and need; train stroke specialists; study interventions in Rwanda

Uganda/India

Uganda (Kiruddu/Mulago, Nsambya)

- Finished observation (n=63, n=22)

  On site training at both sites

  Problem Based Learning Approach – multidisciplinary teams

Org

MANAGEMENT.
- Protect the airway
- Optimise nutrition
- Stress ulcer preventation.
- Pressure ulcer prevention.- Clean and dry.
- DVT prophylaxis
- Early mobilisation and physiotheraphy
  — Speech and Occupational therapy
- Counsel family/attendents

SPECIFIC MANAGEMENT.

Ischaemic CVA
- Anti Platelet therapy.
- Anti cholesterol therapy
- ? Atrialfibrillation - Beta blocker

Heamorrhagic CVA
- Neurosurgical review [Pre-opp and Post-opp care]
- B.P Control

NOWLEDGE

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GROUP A
MANAGEMENT OF A PT. WITH Stroke:
RESUSCITATION — A B C
INVESTIGATIONS. CT — Note Type el/st.
CARE ON THE WARD
*MULT DISPLINARY APROACH
— MANAGEMENT.
Position in bed — 30° Proped in bed
Vital observations.
Routine Investigation — BS. RBC CBC LFTS RFTS
Medication — According to the Sub.type

DAILY CARE. — HYGIENE. NUTRITION
- HGT   ELIMINATION. Psychologare
- URETHRAL CATHETOR   Physiotherapy — Passive exercises.
- TURNING 2°   Rehabilitation.
- TREATIMI PRESSURE -Λ.   — speech therapy
- Bed bath   — occupational therapy
- ORAL CARE
- Fluid balance chart.
- Suctioning
EDUCATION OF The Family - about pt's care
— Counselling
— Teach them how to Care for the pt.

Uganda/India

India (Duncan, Banaras)
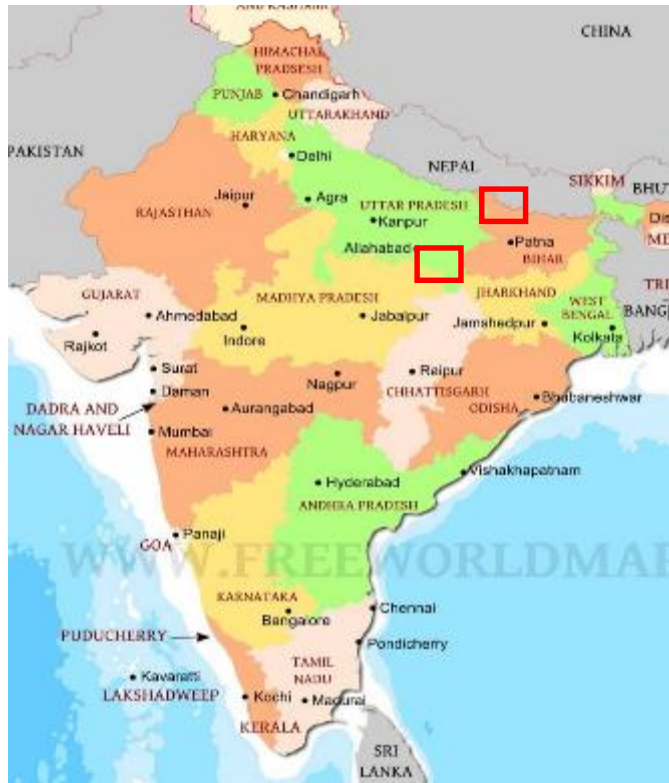
Uganda (Kiruddu/Mulago, Nsambya both in Kampala)

Uganda/India

Uganda (Kiruddu/Mulago, Nsambya both in Kampala)

- Finished observation (n=63, n=22)

    On site training at both sites

    Problem Based Learning Approach – multidisciplinary teams

    Teams identified top five areas that could improve stroke care

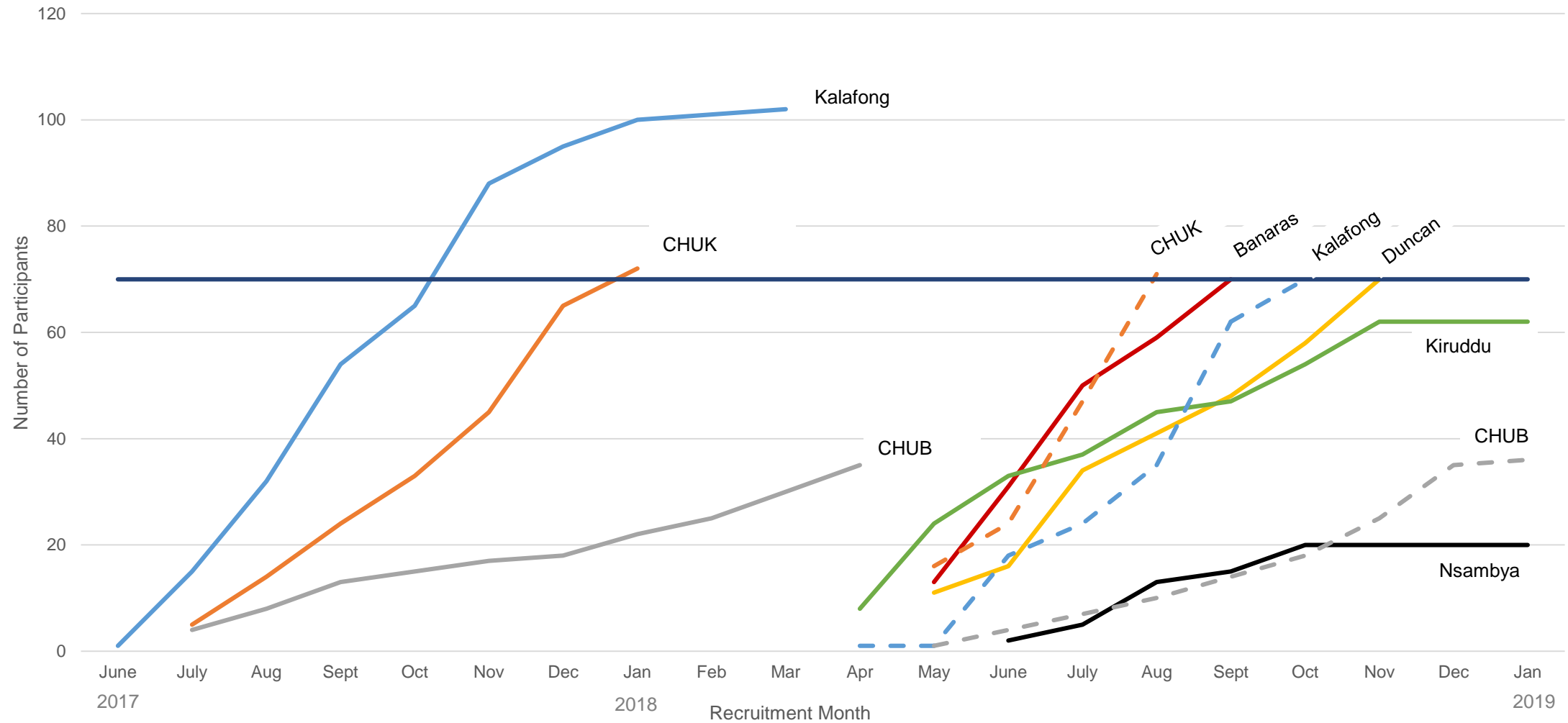   Opportunity for multidisciplinary training in Hamilton??

India (Duncan, Banaras)

- Finished observation (n=70, n=70)

    On site training at both sites, delivered by local team

Both countries are starting intervention phase

Recruitment over time

Conclusions

- The pilot study was successful in identifying:
  - Structures to enable study conduct in research naïve environments
  - Recruitment challenges and solutions
  - Data collection challenges and solutions
  - A network of researchers

- Training successes
  - 1 PhD (so close); 1 just started
  - Opportunities to present at an international meeting (8 abstracts at WSC 2018)
  - National interest/dialogue on improving stroke care

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Next steps!

- Finish intervention phase
  - IJS interested in publishing a special edition on stroke in low resource settings
- Submit proposal to Rwandan Ministry of Health
- Submit proposal for Uganda multidisciplinary team training
- Start additional site in South Africa (Mthatha) and new country (Sri Lanka)
- FIND MORE FUNDING!!!