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An Evidence Brief for Policy

Executive summary

Improving Patient Safety for better Quality of Care

This evidence brief was prepared to inform dialog about multiple policy options. ***It does not include recommendations.***

This evidence brief was prepared by the Uganda country node of the Regional East African Community Health (REACH) Policy Initiative

Who is this evidence brief for?

Policymakers, their support staff, and other stakeholders with an interest in the problem addressed by this evidence brief

Why was it prepared?

To **inform deliberations** about health policies and programmes by **summarizing the best available evidence** about the problem and viable solutions

What is an evidence brief for policy?

Evidence briefs for policy bring together **global research evidence** (from systematic reviews*) and **local evidence** to inform deliberations about health policies and programmes

***Systematic Review:** A summary of studies addressing a clearly formulated question that uses systematic and explicit methods to identify, select, and critically appraise the relevant research, and to collect and analyse data from this research

Full Report

The evidence summarised in this Executive Summary is described in more detail in the Full Report

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1-page summary

The problem:

Adverse events in national healthcare

Adverse events can occur from nearly any patient interaction with the healthcare system. Estimates for adverse drug events (ADEs) stand at 5% to 20% for hospitalized patients while 3% to 14% of hospital admissions are related to ADEs. Errors involving medical devices such as hypodermic needles, syringes, unsafe blood and blood products are significantly associated infections including, HIV, Hepatitis B and malaria. Hospital acquired infections affect 28% of admitted patients. The organisational safety culture in health facilities and hospitals is rather weak with predominantly punitive responses to medical incidents.

Policy options:

1) Nurse staffing models for health facilities
2) Empowerment of health consumers
3) Medication review in health facilities

1. Some nurse staffing models probably reduce death in hospitalized patients, reduce length of stay in hospital, but could slightly increase readmission rates.
2. There is low to moderate quality evidence supporting benefits for consumer involvement in developing healthcare policy and research, clinical practice guidelines and patient information material.
3. Medication reviews can minimize on inappropriate prescribing, associated with adverse drug events, drug interactions and poor drug adherence which may decrease hospital emergencies, and slightly decrease mortality.
   - Given the limitations of the currently available evidence, rigorous evaluation and monitoring of resource use and activities is needed for all the options.

Implementation strategies:

A combination of strategies is needed to effectively implement the proposed options

- Community sensitization and mobilisation to improve knowledge, skills, attitudes, and motivation of health consumers, and other stakeholders
- Training of allied health professionals to perform drug re-assessments at lower level health facilities where there are no allocations for clinical pharmacists' positions.
- Continuing professional education, outreach visits, audit and feedback to motivate physician prescribers' in adopting medication review.
- Adequate remuneration, material and non-material incentives are to motivate health workers, particularly for hard-to-reach areas.
- The current tax-based financing could be expanded with social health insurance and voluntary schemes such as community/cooperative-based health insurance and private-for-profit health insurance covering particular populations to scale up the proposed policy options.

The problem

The modern healthcare system is mandated with curing disease and alleviating disability; but often at a cost of inflicting avoidable harm.(1) The World Health Organisation (WHO) confirms that significant numbers of patients are harmed due to their healthcare resulting in permanent injury, increased length of stay in hospitals or even death.(2)

In 2009, the Uganda Ministry of Health together with national stakeholders, particularly the Private-Not-for-Profit sector and WHO initiated efforts to strengthen patient safety particularly in rural-based hospitals through research and training.(3) This prompted for stronger movement towards a national patient safety policy and protective legislation for health workers reporting medical incidents; to augment the already existing 'Health Sector Quality Improvement Framework and Strategic Plan'.(4, 5) The Ministry and national stakeholders have underscored the benefit of describing both local and global evidence on the issue of patient safety to inform a policy decision.(5) The departments for Quality Assurance and Clinical Services identified key informants for this sector comprising; policymakers, researchers, health managers, practitioners and civil society to provide views and information defining the problem, potential policy solutions and implementation considerations on the issue. The results from this survey have been used as a guideline for information retrieval and development of this report.(5)

Size of the problem

Adverse events can occur from nearly any patient interaction with the healthcare system. Tumwikirize (2011) reports that 5% to 20% of hospitalized patients in developing contexts suffer from Adverse Drug Events (ADE) and 3% to 14% of hospital admissions are related to ADEs.(6) Errors involving medical devices such as hypodermic needles, syringes, unsafe blood and blood products are significantly associated infections including, HIV, Hepatitis B and malaria. 5% to 15% of HIV infections result from unsafe blood transfusions.(7) Hospital acquired infections affect up to 28% of admitted patients.

Cause of the problem

A framework on healthcare safety commissioned by WHO has been used to investigate contributing factors of adverse events from national healthcare. Poor staffing levels hinder effective communication amongst health workers, leading to provider fatigue and creating an environment for medical incidents.(1) A poor organisational safety culture is widespread in hospitals countrywide with under-reporting of medical incidents and predominantly punitive responses to errors by health workers. This is further exacerbated by weak referral systems, poor patient discharge preparation and implementation which lead to both delays and failure in delivering health care. A number of processes contribute to unsafe care. Clinical misdiagnosis leads to mismanagement, with exposure to unnecessary procedures, drugs, while at the same time not dealing with the actual problems patients are suffering from. Consumption of sub-standard or counterfeit medicines which are ineffective and often dangerous to patients leading to treatment failures, drug resistance and death.

Policy options

National stakeholders in patient safety identified potential policy solutions to improve the quality of Uganda's health care services.(5) We assessed the research evidence on the effectiveness of these safety practices, as well as others from the literature, and their implementation in a developing context, such as Uganda's. The three policy options can be adopted independently, or could complement one another. Patient safety incidents can be reduced through appropriate nurse staffing models, empowering patients and families to inform healthcare policy and practice, and review of medication in hospitalized patients.

Policy Option 1

Nurse Staffing Models for Health Facilities

Nurse staffing model interventions include changes to nurse staffing levels, the nursing skill mix, the educational preparation of nurses, staff allocation models, shift patterns, and the use of overtime and agency staff.(8)
Nursing resources allocated to meet patient care needs can be quantified in terms of numbers of patients in the health unit; i.e., nurse per patient ratio. Nursing skill mix refers to the proportion of different nursing grades, and levels of qualification, expertise and experience.(9)

Current Status of Nurse Staffing Models for Health Facilities
The Uganda Nurses and Midwives Council is responsible for setting and regulating training standards and has registered at least seventy nurse training institutions in the country. Almost twenty (20%) percent are government-owned, with the majority being faith-based or private-not-for-profit (42%) and private-for-profit at thirty-eight (38%) percent.(10) The nurse training curricula feature a mix of certificate, diploma and degree (Bachelors and Masters) for general nursing and specialist nursing including; enrolled and registered midwives, psychiatric nursing (Butabika School of Mental Health Nursing), public health nursing (Public health nurses' College), nutritionists, palliative care nursing, paediatric nursing (Jinja School of Nursing and Midwifery) and others.(10)

A human resources for health audit showed public sector health facilities staffing at 60.5% nationally, with unfilled vacancies at 39.5%.(11) There are 64% of nurses and midwives serving the central urban region which covers only 27% of the population.(12) Specialist nursing posts in public health, psychiatry and nutritionists at the national referral hospitals record 17% vacancies, while at the eleven regional referral hospitals this comes to 24%. There is an exponential increase of the specialist nursing gap at 42% for seven general hospitals, with poorer recruitment patterns at the lower level health facilities.(13)
Inadequate staffing and retention are influenced by insufficient training capacity, unattractive remuneration, poor living conditions with inadequate housing and lack of social amenities, particularly in rural areas.(14)

Effectiveness of hospital nurse staffing models
Butler and colleagues (2011) conducted a high quality systematic review assessing hospital nurse staffing models.(8) The reviewers assert that some nurse staffing models probably;

- *Reduce death in hospitalized patients*
- *Reduce length of stay in hospital*
- *Slightly increase readmission rates*

Policy Option 2

Empowerment of Health Consumers

Patient-centeredness is increasingly recognized as an important aspect of health care and incorporates various approaches to involve patients and their families' participation in reduction of adverse events, and promotion of consumer rights.(15)
The World Health Organization's Declaration of Alma Ata enshrines the rights and duties of communities to participate in the planning and implementation of their healthcare.(16) Health consumers can be involved in developing healthcare policy and research, clinical practice guidelines and patient information material, through consultations to elicit their views or through collaborative processes. Consultations can be single events, or repeated events, large or small scale.(17)

Current Status of Empowerment of Health Consumers

Uganda's civil society is active in promoting health rights and health voices for the public. An NGO (non-governmental organizations) study in the health sector found that indigenous NGOs are largely characterized by mainly urban and localized membership, high financial dependence on foreign organizations, with little or no funding from the Government, limited human resource skills, poor sustainability and emphasis on service delivery roles versus advocacy work.(18)

Some successful efforts at collaborating with local communities for health include training community members for health promotion activities, e.g. constructing pit latrines, hand-washing facilities and protection of natural springs for safe water.(19)
National stakeholders have been involved in influencing decision-making through policy dialogues, constituted working groups in developing policy briefs, collaborated through advisory groups in setting health priorities and developing a national repository for health systems evidence.(20)

Surveys by the Uganda National Health Consumers Organization's indicate weak client feedback mechanisms on services, and poor knowledge of patients' rights by both health consumers and providers.(21-23) The Uganda government has instituted a *Patients' Charter* to promote awareness about patients' rights and responsibilities and support consumer demand for good quality health care.(24)

Effectiveness of Consumer Involvement in developing healthcare policy and practice

Nilsen and colleagues (2006) conducted a high quality systematic review assessing methods of consumer involvement in developing healthcare policy and research, clinical practice guidelines and patient information material.(17)
There was little evidence from randomized controlled trials (RCTs) of the effects of consumer involvement in healthcare decisions at the population level, but concluded that RCTs are feasible for providing evidence about the effects of involving consumers in these decisions.

Consumer involvement in health policy

One study from the review compared two forms of deliberative consumer involvement (telephone discussion and a group face-to-face meeting) and a mailed survey in eliciting priorities for community health goals. Very low quality evidence suggests that both telephone discussions and face-to-face meetings achieve more involvement than a mailed survey, based on the low response rate to the mailed survey.

Consumer involvement in health research

There is moderate quality evidence from two studies that;

- *There may be little or no difference in worries or anxiety associated with procedures for patients receiving information material developed following consumer consultation, compared with patients receiving material developed without consumer consultation.*
- *Consumer consultation prior to developing patient information material probably results in material that is more relevant, readable and understandable to patients.*

Moderate quality evidence from one study shows that consumer consultation before developing patient information material can probably improve the knowledge of patients who read the material.

Consumer involvement in preparing patient information

There is low quality evidence from one study that consumer consultation in the development of consent documents may have little if any impact on;

- *Participant's self-reported understanding of the trial described in the consent document*
- *Satisfaction with study participation*
- *Adherence to the protocol*
- *Refusal to participate*

None of the studies from the review addressed harmful effects of consumer involvement, such as tokenism or consumer involvement slowing the process down and making it costlier.

Policy Option 3

Medication review in health facilities

Medication review is the systematic re-assessment and possible change of an individual patient's prescriptions in order to optimize on the effectiveness of therapy and to minimize drug harms. Medication reviews can be performed by a clinical pharmacist, physician or other healthcare professional in a facility to minimize on inappropriate pharmacotherapy or prescribing, which are associated with adverse drug events, drug interactions and poor drug adherence. (25)

Current Status of medication review in health facilities

The Uganda Health Service Commission mandated, in part, to review qualifications and terms of service for health professionals, requires Clinical Pharmacists at all levels to provide *'advice to clinicians and other health professionals on prescriptions given'* in addition to other regular duties.(26) A human resources for health audit showed vacancies at 22% for clinical pharmacists at the national referral hospitals of New Mulago and Butabika. The

deficit increased sharply to 71% unfilled posts at seven regional referral hospitals, and this was further exacerbated at some general district hospitals with the only single post not being filled.(13) There are no pharmacists indicated at health centres II, III and IV.

Effectiveness of medication review in hospitalised patients

Christensen and Lundh (2013) conducted a high quality systematic review investigating review of medications in hospitalised patients to reduce morbidity and mortality.(25) The findings suggest that medication review by pharmacists or physicians may influence the outcomes below at one year of follow-up:

- ➔ *May decrease hospital emergencies*
- ➔ *May slightly decrease mortality*
- ➔ *May lead to little or no difference in hospital readmissions*

Implementation considerations

Evidence regarding key barriers to improving patient safety and strategies to address them is summarized in the table below.

Table 1. Implementation considerations

Barriers *to implementation*	**Strategies** *for implementation*
Knowledge, Skills, Attitudes, and Motivation of Health Consumers, and other Stakeholders The majority of national health consumers are not able to effectively influence health care decisions and services. This is due to low literacy levels, and minimal civil engagement for marginalized groups, resulting in poor attitudes and motivation towards consumer involvement in health care.(18)	**➔Community Sensitization and Mobilisation** Extensive sensitization and mobilization of recipients of care for effective ownership of health services and systems. Learning from successful precedents such as the NHS (UK National Health Service) 'INVOLVE' program on degrees of consumer participation in research; consultation, collaboration and control.(27) **➔Consumer Recognition and Awards** Recognition and awards for citizen contributions could improve motivation.(28) Sustainability through national institutions, such as the Uganda National Health Research Organization and involving stakeholders in policy dialogues, working groups, advisory groups in setting health priorities for research, policy and participation in decision-making.(20)
Knowledge and Skills of Health Workers There are no clinical pharmacist posts allocated for lower level health centres II, III and IV.(13) Training of other allied health cadres is needed to fill this gap.	**➔Training of allied health professionals** to perform drug re-assessments. It is a professional prerequisite for clinical officers to prescribe medications. Educational meetings alone or combined with other interventions, can improve professional practice and healthcare outcomes for the patients.(29)

Barriers *to implementation*	**Strategies** *for implementation*
Health worker motivation to change or adopt new behavior Some trials report that the majority of recommendations (61% to 82%) from drug re-assessments were not followed by prescribing physicians.(25, 30)	**➔Continuing professional education, outreach visits, audit and feedback** Educational meetings (training workshops), educational outreach (a personal visit by a trained person to health workers in their own settings), audit and feedback (a summary of performance over a specified period of time given in a written or verbal format) can be used alone or in combination with each other and other interventions to improve health worker practice. Educational meetings alone or combined with other interventions, can improve professional practice and healthcare outcomes for the patients. Other interventions include; audit and feedback, and educational outreach visits. Strategies to increase attendance at educational meetings, using mixed interactive and didactic formats, and focusing on outcomes that are likely to be perceived as serious may increase the effectiveness of educational meetings.(29, 31-34)
Inadequate Human Resources An increased supply and distribution of specialist nurses would be needed. Specialist nursing posts in public health, psychiatry and nutritionists at the national referral hospitals record 17% vacancies, while at the eleven regional referral hospitals this comes to 24%. There is an exponential increase of the specialist nursing gap at 42% for seven general hospitals, with poorer recruitment patterns at the lower level health facilities.(45)	**➔Financial and non-financial incentives** Adequate remuneration, material and non-material incentives are essential to motivate health workers. A systematic review by Willis-Shattuck (2008) examined factors affecting retention of health workers in low income settings. Motivational factors such as adequate financial incentives, career development and management issues particularly health worker recognition, adequate resources and appropriate infrastructure can improve morale significantly.(47) Another systematic review by Penaloza and colleagues (2011) affirms that in addition to financial rewards, career development, continuing education, improving hospital infrastructure, resource availability, better hospital management and improved recognition of health professionals, help reduce on 'brain-drain'.(35)
Inadequate Financial Resources Additional financial resources would be required for the newly recruited staff including wages, and other related costs for optimum function of the public health system. Considerable resources would be needed for mobilization, and sensitization of health consumers. In the Abuja Declaration of 2001, African governments pledged to commit at least 15% of their national budgets to the health sector.(36) However, government expenditure on health is 7.6% of the GDP (gross national product).(37)	**➔Health Insurance Schemes** A transition towards a universal health care coverage would require a combination of the current tax-based financing plus social health insurance and voluntary schemes such as Community/Cooperative-based health insurance and private-for-profit health insurance covering particular populations. A systematic review (2012) by Spaan and colleagues investigating impact of health insurance in Africa and Asia shows protection against the detrimental effects of user fees and a promising avenue towards universal health-care coverage.(38) A high quality review (Ekman, 2004) on CHIs in low-income countries found strong evidence that community-based health insurance provides some financial protection by reducing out-of-pocket spending. There is evidence of moderate strength that such schemes improve cost-recovery. There is weak or no evidence that schemes have an effect on the quality of care or the efficiency with which care is produced.(39)

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