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Optimizing Clinical Algorithms using Healthcare Worker “Feedback Data”

Swiss TPH CDSS Symposium

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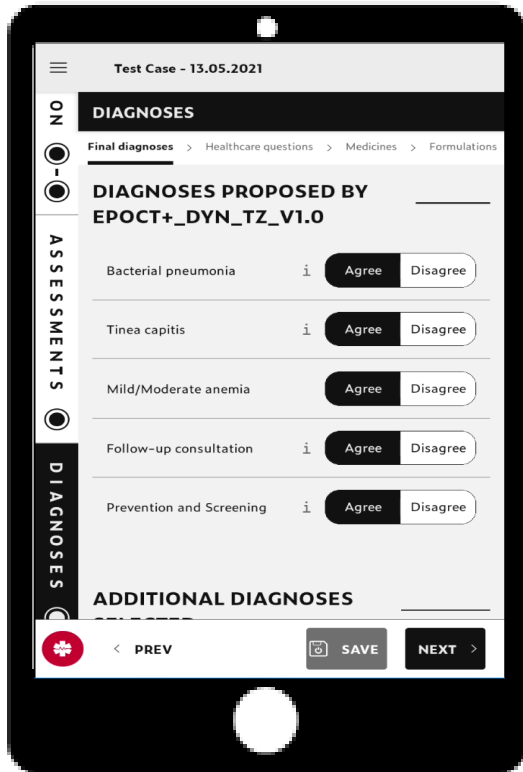
Background

- Scope of CDSAs limited
- Use of CDSAs may neglect patient-initiated elements and nuanced clinical observation ¹
- Overall clinical impression: significant and influential aspect of the diagnostic procedure ²⁻⁴
- Disagreement with clinical algorithm may reduce trust and uptake

Ref: ¹Greenhalgh, BMJ, 2014; ²Meredith, Diagnosis, 2019; ³Van den Bruel, BMJ, 2012; ⁴Dale, British J of Gen Practice, 2019



Photo credit: Magali Rochat



ePOCT+ / medAL-reader

Making CDSAs participatory

- Accept / Reject diagnoses and treatment
- Allow addition of additional diagnoses and treatments
- Clinical variables on “overall clinical impression”
- Ask if clinical signs “not feasible”

Making CDSAs participatory

- Improve clinical safety / accuracy
- Shows respect and consideration of the clinician's judgement
- Improve perceived usefulness: improve uptake



Photo credit: Ludovico Cobuccio

Findings from DYNAMIC study



- Study design:
 - Tanzania: Cluster RCT in 40 primary care health facilities
 - Rwanda: Cluster non-randomized parallel group study in 32 primary care health facilities and Cohort study
- Use of ePOCT+:
 - Tanzania: 20 Health Facilities: 17,985 cases
 - Rwanda: 16 Health Facilities: 32,994 cases

Approach:

- Evaluate acceptance and rejection of diagnoses
- Evaluate signs that were not measured
- Questionnaire among 32 healthcare workers in Tanzania
- 15 in-depth qualitative interviews with healthcare workers using ePOCT+ in Tanzania

Malnutrition

Classification	Rejection TZ	Rejection RW
Uncomplicated Severe Acute Malnutrition	35%	70%
Moderate Malnutrition	27%	63%

“I would mostly rely on the clinical appearance of the child if he looks malnourished or not so the other measurements would come next to agree to a given diagnosis.”

“I think it’s a problem with the measurements so height, weight and MUAC. Most patients that have the diagnosis of severe acute malnutrition in reality they do not have...To agree to that diagnosis I look at the patient clinically, the health of the child, how she eats and how she look.”

Severe Disease

Classification	Rejection TZ	Rejection RW
Severe Pneumonia	21% (15/71)	40% (64/159)
Severe Dehydration	48% (29/61)	59% (42/71)
Very Severe Febrile Disease	11% (3/28)	42% (22/53)
Severe Clinical infection (<2m)	33% (102/305)	45% (5/11)
Critical Illness (<2m)	41% (7/17)	56% (18/32)

- Lack of specificity of algorithm or specific signs?
- 86% of rejected cases of severe pneumonia were cured by D7
- 44% (35/79) of rejections were cases of severe pneumonia due to SpO2<90%:
- Challenges in referral processes?

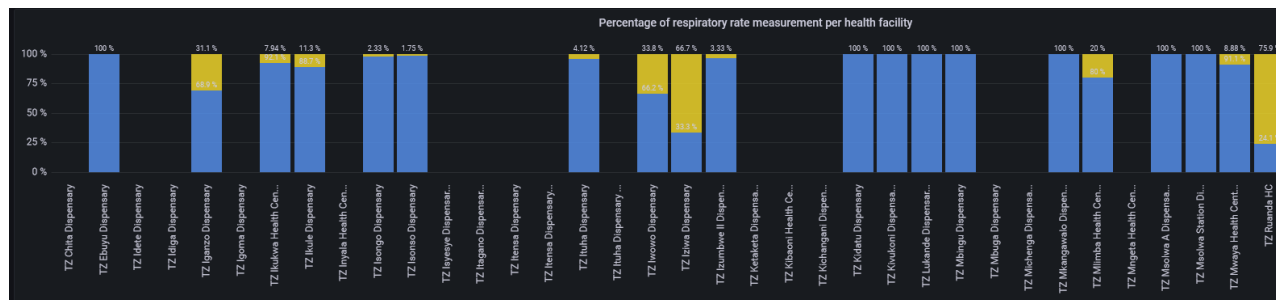
Mislabelled / Misunderstood classifications

Classification	Rejection TZ	Rejection RW
Suspected Malaria	96% (135/141)	87% (118/135)
Suspicion of Tuberculosis	66% (55/83)	91% (2,316/2,538)
Prevention and Screening	5% (874/16,147)	44% (13,099/29,624)
Negative HIV (<2m)	3% (7/262)	41% (91/220)

“Also you know that there is less malaria in Mbeya and the patient didn’t travel outside Mbeya so if that if the case you reject ”

Signs / Measures

Sign / Measure	Not feasible TZ	Not feasible RW
Respiratory Rate	14% (0-88%)	13% (0-78%)
SpO2	19% (0-93%)	10% (0-68%)
MUAC (≥ 6 m)	7% (0-32%)	9% (0-33%)
Height	76% (3-97%)	18% (0-43%)
Temperature	3% (0-24%)	0.5% (0-3%)



Conclusion

- Integrating HCW feedback in CDSA design can help provide data to improve clinical algorithms and improve uptake
- HCW feedback data can identify gaps in knowledge and training needs
- Further research required to understand HCW feedback data



Photo credit: Magali Rochat



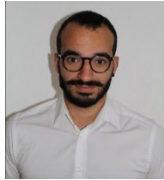
H Masanja



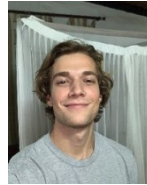
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Questions?

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