Integrated community case management (iCCM) or Integrated management of childhood illness (IMCI)

Authors: Kaur G, Ahmed S, Watkins D, Coates MM, Økland JM, Haaland ØA, Johansson KA

Description of condition and intervention

Integrated management of childhood illness (IMCI) is an integrated approach directed towards well-being of infant and child health. This strategy promotes early identification of common illnesses in children less than 5 years followed by appropriate referral and institution of treatment to the affected children. Various algorithms exist in IMCI at preventive and therapeutic level to guide the health workers and support the children and their caregivers. Health centre is the predominant delivery platform for IMCI while community is for iCCM. This difference would primarily impact the health care costs, depending upon care seeking pattern and the resource use. We discuss about effects and costs of key interventions inc

International guidelines for iCCM or IMCI

Organization		Applicability in LIC & Lower MIC settings
World Health Organization	Integrated Management of Childhood Illness	Yes

Intervention attributes

Type of interventions

Curative

Delivery platform

Community is the delivery platform for provision of iCCM. Health centre at primary care level is the predominant delivery platform for IMCI.

Equity

In addition to considerations like cost-effectiveness and health systems factors, dimensions of equity can be relevant for priority setting. The opportunity for a long and healthy life varies according to the severity of a

health condition that individuals might have, so there are inequities in individuals' opportunities for long and healthy lives based on the health conditions they face. Metrics used to estimate the severity of illness at an individual level can be used to help prioritize those with less opportunity for lifetime health. FairChoices: DCP Analytics Tool uses Health adjusted age of death (HAAD), which is a metric that estimates the number of years lived from birth to death, discounting years lived with disability. A high HAAD thus represents a disease less severe in terms of lifetime health loss, while a low HAAD represents a disease that is severe on average, causing early death or a long period of severe disability. It is also possible to estimate the distribution of HAAD across individuals with a health condition. FairChoices shows for each intervention an average HAAD value of the conditions that are affected by respective interventions that have health effects. Additionally, a plot shows HAAD values for around 290 conditions (Johansson KA et al 2020).

Time dependence

High level of urgency for all interventions in these integrated clusters and treatment outcomes will be highly affected by some days of delay for all these conditions.

Population in need of interventions

Children in age-group 0 to 5 years with any of the health conditions-lower respiratory infections, diarrhoea, malaria or sepsis.

Disease states addressed

Children with the following conditions are affected by iCCM and IMCI: lower respiratory infections (bacterial pneumonia), diarrheal diseases and malaria. In absence of global epidemiological data on sepsis, it is not included in the model at present.

Intervention effect and safety

Table 1: Effect and safety of IMCI or ICCM

What happens?	No intervention	With intervention	Certainty of evidence
Mortality Pneumonia treatment with antibiotics Diarrhoea associated	Theodoratou et al 2010 estimated a 70% reduction in mortality with community case management with antibiotics for pneumonia in 0 to 5- year-old children. 93% reduction with diarrhoea associated mortality when treated with oral rehydration solution (Black et al 2016)		See appendix
Prevalence Malaria	98% reduction in malaria cases (in Ethiopia) (Gebreyohannes 2017)		

Model assumptions

Table 2: Summary of model parameters and values used in FairChoices – DCP Analytical Tool

Category	Pneumonia	Diarrhoea	Malaria	
Intervention	Integrated management of childhood illness (IMCI) or Integrated community case management (iCCM)			
Treated population	Incidence of lower respiratory infections	Incidence of diarrhoeal diseases	Incidence of malaria	GBD study 2019
Gender	Both			
Age	0 to 5 years			
Treated fraction	5.3 (assuming average number of visits)			Based upon the country's health system, this intervention could be either implemented at community or health centre or both platforms and costed accordingly.
Affected population	Those with condition			
Gender	Both			
Age	0 to 5 years			
Affected fraction	1			
Comparison	No care			
Mortality Reduction (RRR*)	0.7 for pneumonia associated mortality	0.93 for diarrhoea associated mortality		
Prevalence Reduction (RRR)	-	-	0.98	The outcome of treatment success in patients of falciparum malaria with artemether-lumefantrine in the meta-analysis by Gebreyohannes 2017 in Ethiopia was considered as a proxy for reduction in failure cases or prevalence of malaria (P.falciparum).

*Relative risk reduction (RRR) is computed as 1-relative risk (RR)

Intervention Cost

The unit cost of delivering iCCM (per case) and IMCI intervention (per case) is USD 4.02 and USD 7.86 in Tanzania (year 1999) (Watkins 2020).

References

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Theodoratou et al 2010: Theodoratou E, Al-Jilaihawi S, Woodward F, Ferguson J, Jhass A, Balliet M, Kolcic I, Sadruddin S, Duke T, Rudan I, Campbell H. The effect of case management on childhood pneumonia mortality in developing countries. Int J Epidemiol. 2010 Apr;39 Suppl 1(Suppl 1):i155-71. doi: 10.1093/ije/dyq032. PMID: 20348118; PMCID: PMC2845871.

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Appendix

Literature Review for effectiveness & safety

This literature search is an example of a structured, focused review of literature and guidelines. You can choose to do one of the following literature reviews for your Evidence Brief:

> Level 1: intervention inputs taken from DCP3 or generated in an ad hoc manner (e.g., quick google search found one study of cervical cancer screening cost-effectiveness that was used to create an effectiveness parameter for that intervention).

Level of evidence of efficacy studies:

1. low (expert opinions, case series, reports, low-quality case control studies)
2. moderate (high quality case control studies, low quality cohort studies)
3. high (high quality cohort studies, individual RCTs)
4. very high (multiple RCTs, meta-analysis, systematic review, clinical practice guidelines)