Challenges in the developing world

- Limited funding and staff experience
- Analyzing and translating data into useful information
- Political pressures to manipulate data

The sum of deaths claimed by different WHO programs exceeded the total number of deaths in the world.

Christopher Murray, 2004
"Monitoring global health:
time for new solutions," BMJ

Donor driven surveillance

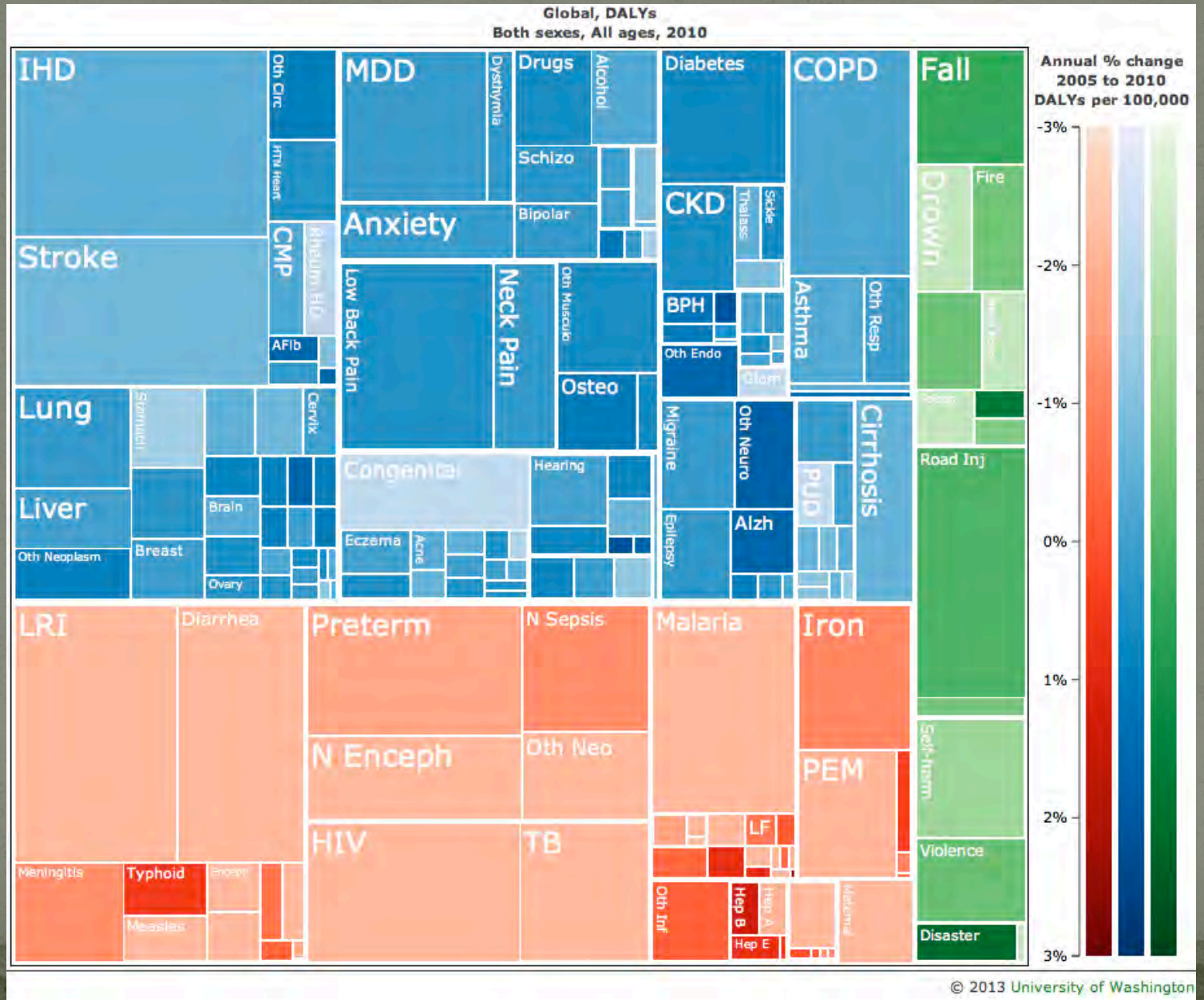
- Driven by funder interests, can be categorical, duplicative or one-size-fits-all
- Global economic downturn impact
  - Donor pledges don't meet needs
  - Global Fund, GAVI, other funds have less $

Global Burden of Disease

Comprehensive effort to measure epidemiological levels and trends worldwide

- 1993: first publication
- GBD 1990: highlighted mental illness and road traffic injuries
- GBD 2010: non-communicable disease and disability
  - 291 diseases and injuries, 67 risk factors, 1160 sequelae, 21 regions
  - Estimates generated by analyzing all sources of information
  - Results reported as disability-adjusted life years
  - Presents sophisticated data visualization

Global DALYs, changes 2005 to 2010



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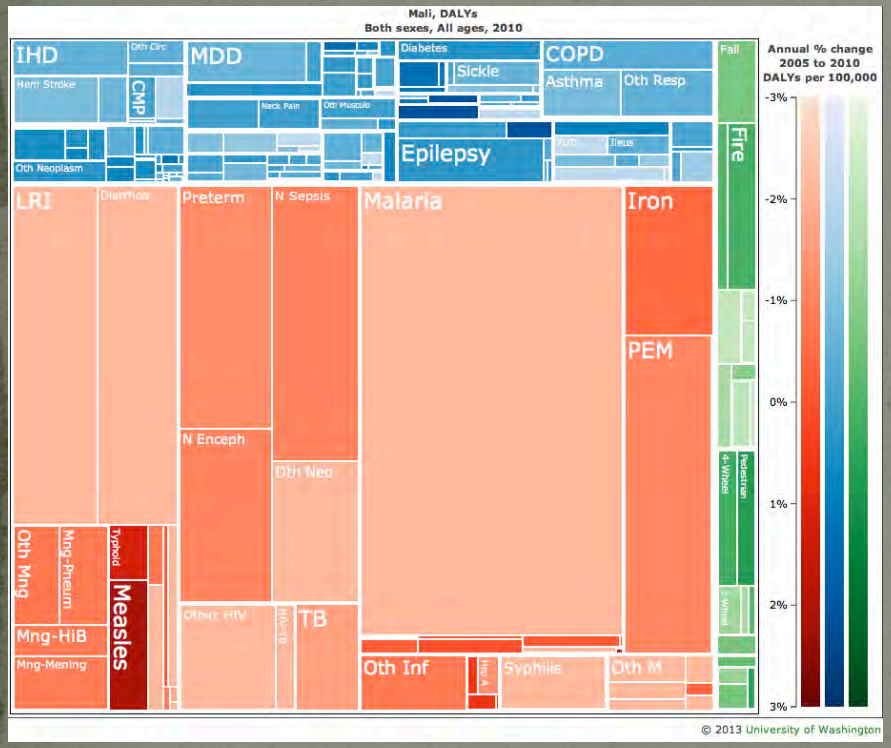
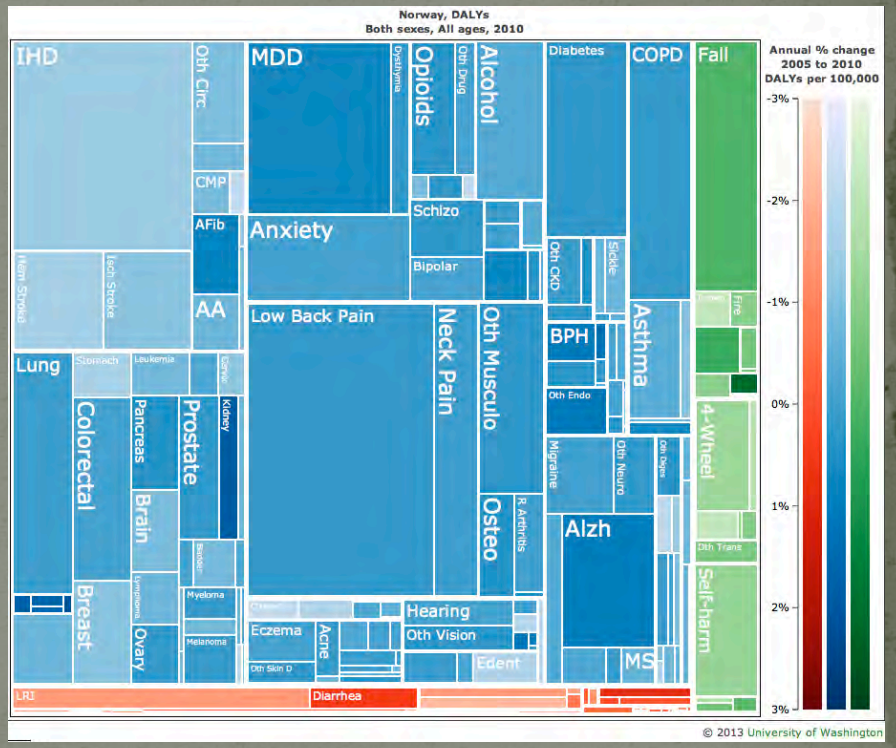
Mali and Norway, 2005 to 2010

Mali

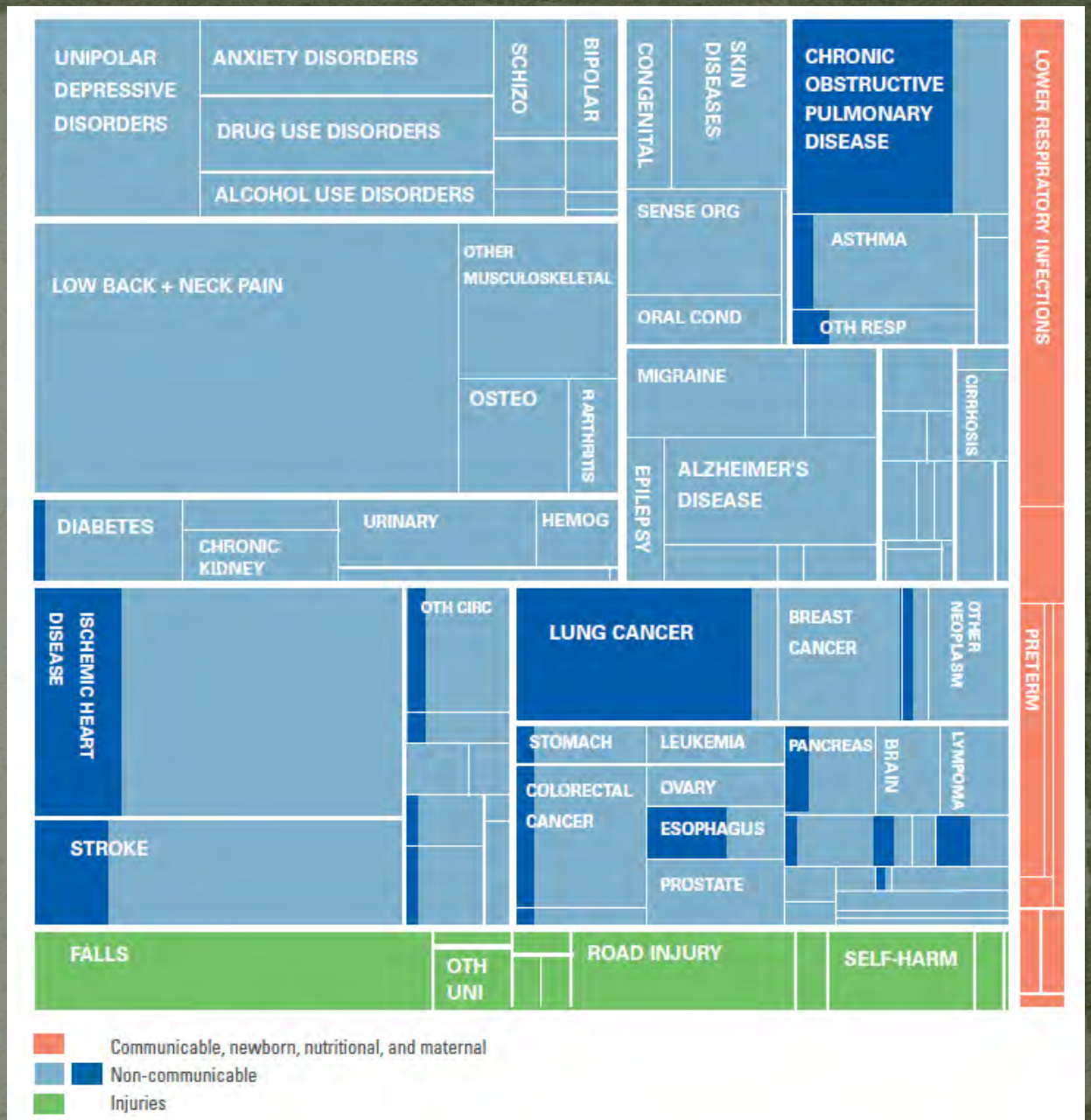


Norway



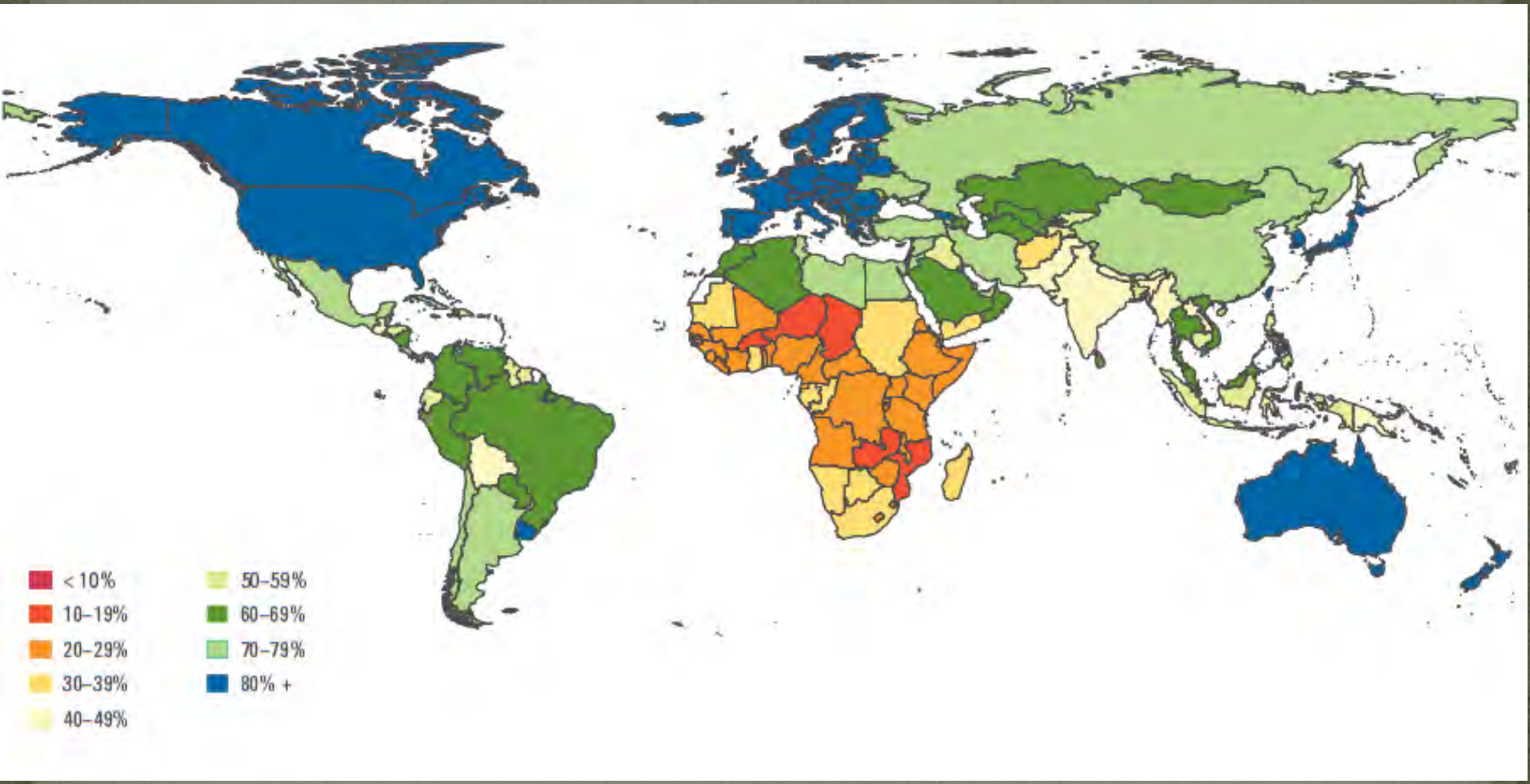
Communicable, newborn, nutritional, and maternal
Non-communicable
Injuries

DALYs attributable to tobacco smoking and secondhand smoke, both sexes, all ages, United Kingdom, 2010

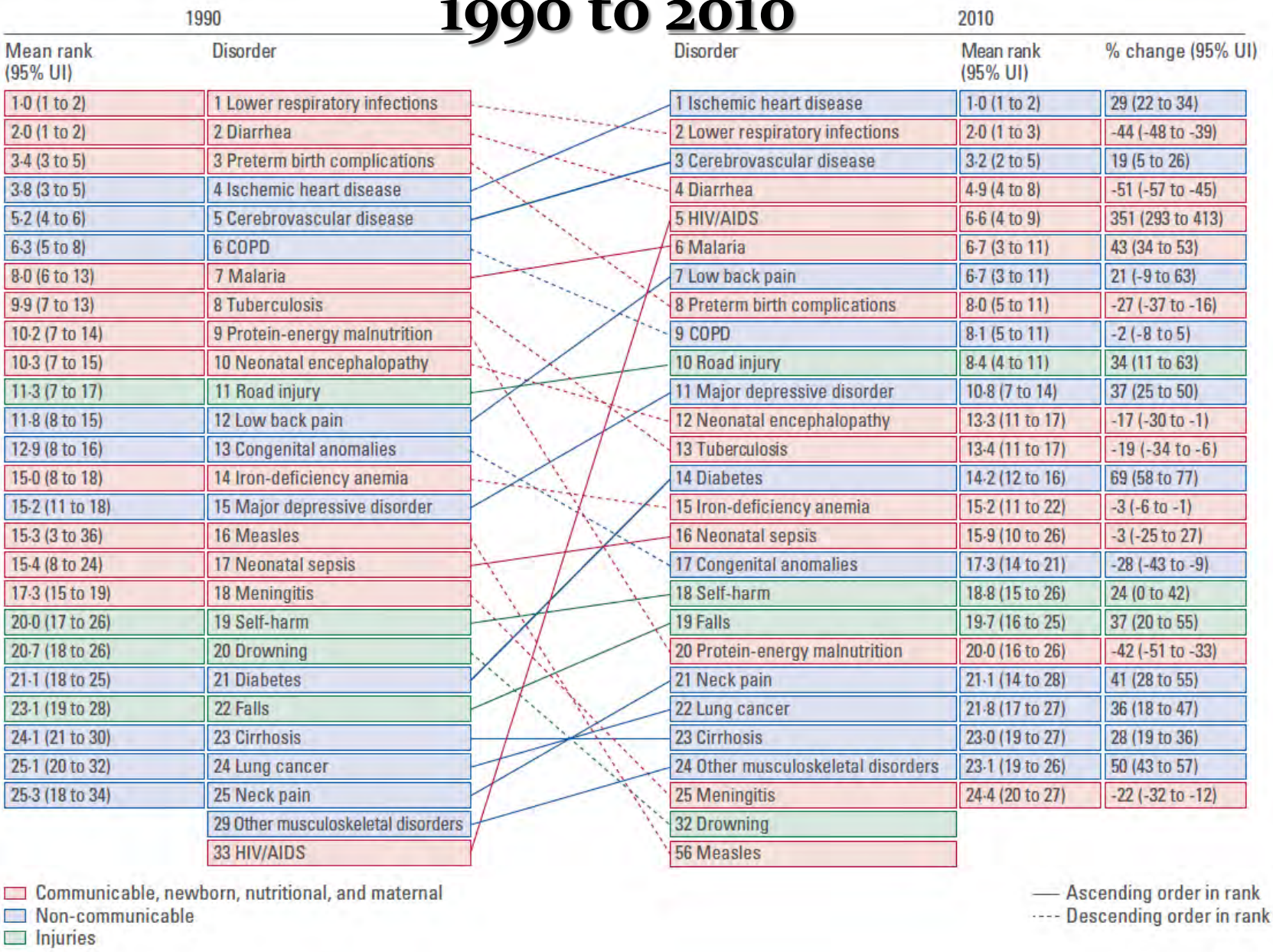


Note: The proportion of each cause attributable to the risk factor is shaded dark.

% of DALYs due to non-communicable disease, 2010



Global DALYs, top 25 causes, % change, 1990 to 2010



Surveillance Summary

- Most surveillance measure health status, at best
- Few measure program impact and few can inform strategies
- Integrated approaches that collect data regularly for multiple purposes are best--routine data!
- Administrative data the best bet for implementation research—available & strengthens the health system

Data Quality Audits (DQAs)

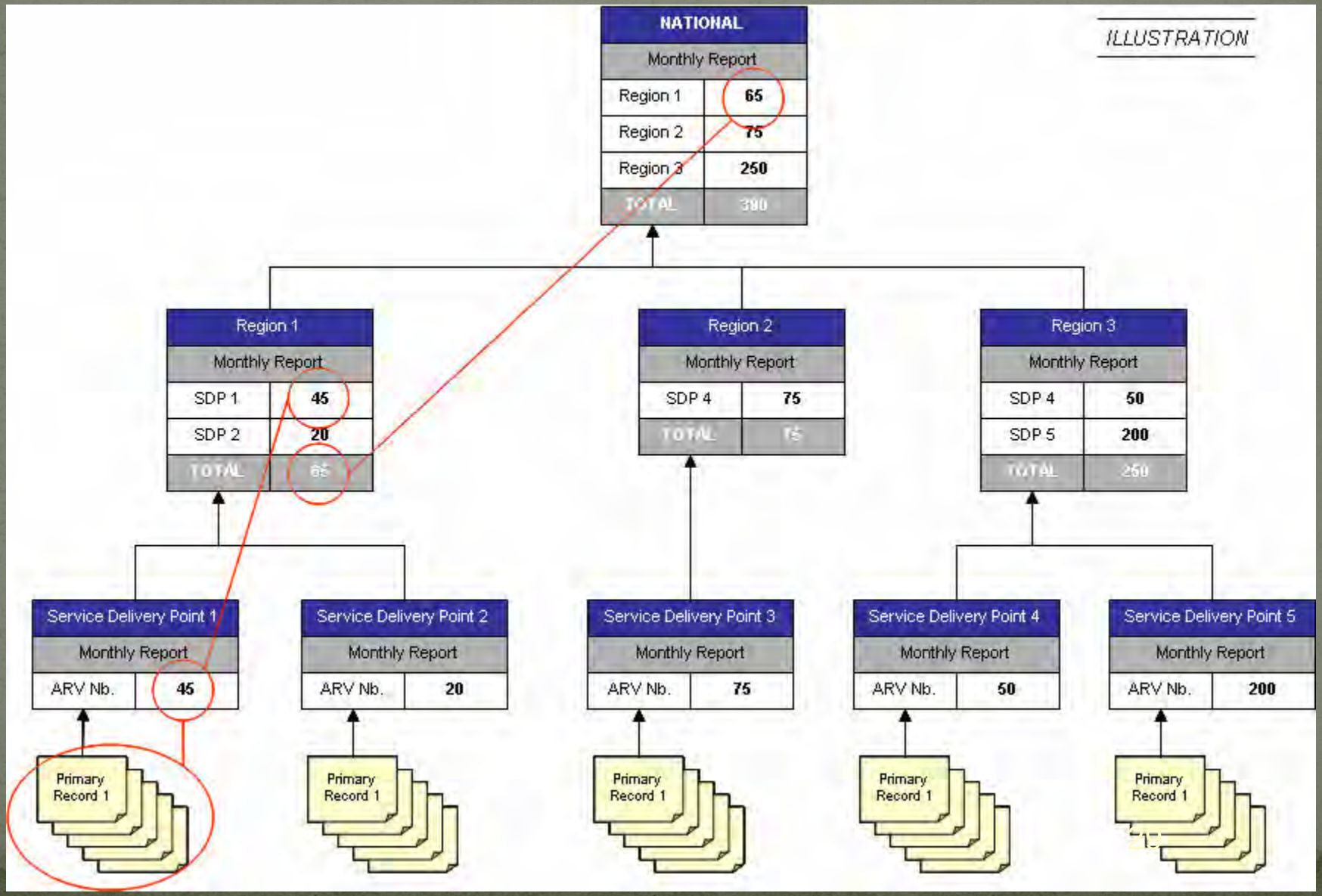
- HMIS are the basis for decision making (and closing the know-do gap) at all levels of a health system
  - Repeated, real time measures
  - Relevant units (facilities, district, province, national)
  - Multiple services
  - Low cost
- Quality concerns undermine their use
- Routine DQAs a simple, low cost technique to improve HMIS

DQAs

Bottom-up Audit Trail

- Verify: availability of primary records (at service delivery) and summary reports (where data are aggregated)
- Assess accuracy of recorded events in primary records (outliers, impossible number of events)
- Re-aggregate data from primary records, compare with summary reports across multiple levels

LFA-GFATM: Paper to database audit



DQAs

- Primary records:
  - People reached: Medical records, registers, tally sheets
  - Commodities distributed: Distribution log sheets, inventory statements
  - People trained: Attendance sheets, per diem sign-up sheets

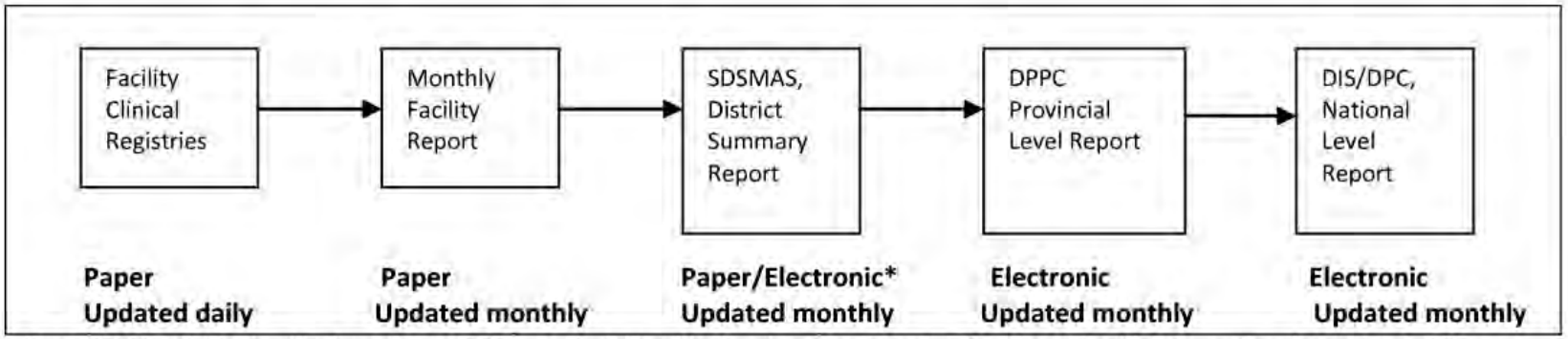
DQAs

- GFATM rubric (what is good enough?)

Rating	Metric
A	Less than 10% error margin
B1	Between 10%-20% error margin
B2	Above 20% error margin
C	No systems in place

DQAs

- Mozambique DQA (Health Alliance International/ Doris Duke Charitable Foundation AHI)
- 2008 pilot
  - Data audit to describe the availability and reliability of a sample of PHC indicators from 9 health facilities (of 136) across 3 districts



Key: SDSMAS-district health department, DPPC-provincial health planning department, DIS-national health information department, DPC-national planning and cooperation department

*Facility-level data is entered into the electronic database and can be aggregated as needed to the district, provincial or national levels

Gimbel, *et al*. An assessment of routine primary are health information system data quality in Sofala province, Mozambique. Population Health Metrics. 2011;9:12.

DQAs

Number of months when facility registers matched monthly facility reports (06/01/08-12/31/08), by indicator

District		Facility Type	1st ANC N (%)	Institutional Birth N (%)	DPT3 N (%)	HIV Testing N (%)	Outpatient Consults N (%)	TOTAL N (%)	Global Fund Rating Grade
1	a	Urban	1/6 (17)	2/6 (33)	4/6 (67)	0/6 (0)	4/6 (67)	11/30 (37)	B2
	b	Peri-Urban	5/6 (83)	6/6 (100)	6/6 (100)	NA	6/6 (100)	23/24 (96)	A
	c	Rural	6/6 (100)	6/6 (100)	6/6 (100)	NA	6/6 (100)	24/24 (100)	A
2	a	Urban	2/6 (33)	1/6 (17)	2/6 (33)	3/6 (50)	6/6 (100)	14/30 (47)	B2
	b	Peri-Urban	6/6 (100)	1/6 (17)	6/6 (100)	6/6 (100)	NA	19/24 (79)	B2
	c	Rural	6/6 (100)	4/6 (67)	6/6 (100)	NA	6/6 (100)	22/24 (92)	A
3	a	Urban	6/6 (100)	6/6 (100)	5/6 (83)	6/6 (100)	6/6 (100)	29/30 (97)	A
	b	Urban	4/6 (67)	6/6 (100)	5/6 (83)	6/6 (100)	4/6 (67)	25/30 (83)	B1
	c	Urban	6/6 (100)	6/6 (100)	6/6 (100)	5/6 (83)	6/6 (100)	29/30 (97)	A
TOTAL			42/54 (77)	38/54 (70)	46/54 (85)	26/36 (72)	44/48 (92)	196/246 (80)	B1

- Median % difference = 4%; 86% differed by <10%
- District monthly paper reports → electronic HMIS: 96-98% matched

Gimbel, *et al*. An assessment of routine primary are health information system data quality in Sofala province, Mozambique. Population Health Metrics. 2011;9:12.

DQAs

- 2009 – 2015: Expansion to annual DQAs in 27 (of 136) health facilities in Sofala province
  - 2 per district + regional referral hospital
  - Comparison of facility, district, provincial and central level data
- Focus on 4 indicators
  - Institutional birth
  - 1st ANC
  - DPT3
  - Outpatient visits
- Data weaknesses identified and used to target program strengthening work at low performing sites/clinics

DQAs

- Model for dissemination of results targeting provincial and district managers

DIRECÇÃO PROVINCIAL DE SAÚDE DE SOFALA

COMO ESTÃO OS DADOS NA PROVÍNCIA DE SOFALA?

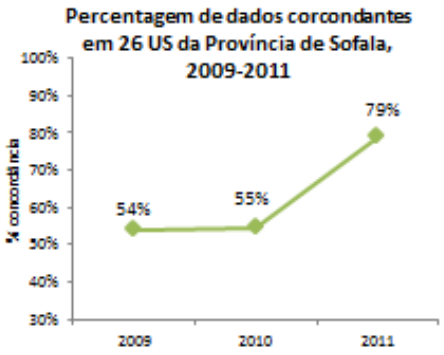
CIOB
CENTRO DE INVESTIGAÇÃO OPERACIONAL DA BEIRA

O estudo "**Avaliação de quatro indicadores de rotina dos cuidados de saúde na província de Sofala**" tem como objectivo avaliar a concordância entre os instrumentos de recolha de dados de rotina de quatro indicadores do Sistema de Informação da Saúde em 2 US de cada distrito da província de Sofala de 2009-2015. Anualmente, uma equipe irá as mesmas US para recolher os dados dos seguintes instrumentos: livros de registo, resumos mensais (da US e distrital) e do Módulo Básico.

Indicadores recolhidos:

1. Nº de partos institucionais
2. Nº de primeira consulta pré-natal
3. Nº de consultas externas
4. Nº de 3ª dose de DPT-HepB-Hib

Calculou-se a concordância de dados entre os vários instrumentos de recolha. Depois, fez-se um ordenamento das US da mais alta a mais baixa percentagem de concordância de 2009-2011. Para o ano 2011, o CS Savane apresenta a maior percentagem de concordância e o HR Búzi a menor, conforme a tabela ao lado.



Ordenamento 2009-2011

	2009 US	%	2010 US	%	2011 US	%
90-100%	Nenhuma US		Nenhuma US		C.S. Savane	93%
					C.S. Chingussura	91%
					C.S. Chemba	90%
					C.S. Catulene	90%
80-89%	C.S. Mazamba	85%	C.S. Tica	81%	C.S. Inhaminga	88%
			C.S. Inharingue	81%	C.S. Tica	88%
			C.S. Galinha	80%	C.S. Inharingue	88%
					C.S. Ponta-Gêa	85%
					C.S. Murema	85%
					H.R. Muxungué	84%
					H.R. Nhamatanda	82%
					C.S. Machanga*	81%
					C.S. Mazamba	81%
					H.R. Marromeu*	81%
70-79%	C.S. Bándua	72%	C.S. Chingussura^	78%	C.S. Bándua	79%
	C.S. Galinha	72%	C.S. Murema^	77%	C.S. Dondo*	78%
	C.S. Mucodza	72%	C.S. Catulene^	75%	C.S. Maringué	78%
	C.S. Mangunde	71%	C.S. Mangunde	75%	C.S. Muanza	78%
	H.R. Muxungué	70%	C.S. Chueza	74%	C.S. Chueza	76%
			C.S. Mucodza	73%	C.S. Mucodza	74%
			H.R. Muxungué	73%	C.S. Canxixe	73%
			C.S. Mazamba	72%		
			C.S. Savane	70%		
<70%	C.S. Chemba	69%	C.S. Bándua	68%	C.S. Caia	69%
	C.S. Inharingue	69%	C.S. Ponta-Gêa	63%	C.S. Mangunde**	69%
	C.S. Tica	67%	C.S. Canxixe	62%	C.S. Galinha**	65%
	H.R. Marromeu	65%	C.S. Chemba	61%	C.S. Gorongosa	59%
	C.S. Chueza	64%	H.R. Nhamatanda	45%	H.R. Búzi	56%
	H.R. Búzi	59%	C.S. Maringué	39%		
	C.S. Savane	58%	C.S. Inhaminga	36%		
	C.S. Maringué	57%	H.R. Búzi	33%		
	H.R. Nhamatanda	51%	C.S. Gorongosa	29%		
	C.S. Muanza	47%	C.S. Muanza	17%		
	C.S. Dondo	45%	C.S. Machanga	16%		
	C.S. Inhaminga	45%	H.R. Marromeu^^	15%		
	C.S. Canxixe	45%	C.S. Dondo^^	14%		
	C.S. Ponta-Gêa	42%	C.S. Caia	13%		
	C.S. Chingussura	41%				
	C.S. Caia	40%				
	C.S. Murema	40%				
	C.S. Catulene	39%				
	C.S. Machanga	18%				
	C.S. Gorongosa	2%				

^ US que mais aumentaram a concordância de 2009-2010.
^^ US que mais diminuiram a concordância de 2009-2010.
* US que mais aumentaram a concordância de 2010-2011.
** US que mais diminuiram a concordância de 2010-2011.

Recomendações para a DPS

- Reforçar as supervisões ao nível das unidades sanitárias com concordância abaixo de 70%
- Garantir que todas as US/Distritos tenham recebido informação sobre a nova data do fim do mês estatístico
- Melhorar a provisão e gestão dos instrumentos utilizados pelo SIS para evitar as rupturas de stock
- Disponibilizar pastas e cacifos para arquivar os instrumentos de recolha de dados durante os 5 anos
- Apoiar as US , sobretudo as da sede distrital, na criação ou reativação do núcleo de estatística

DQAs Expansion

- 2009 – 2016: Sofala province (27 of 136 facilities, focus on PHC indicators)
- 2013 – 2016: Expand to Manica, Tete, Zambezia provinces (109 of ~500 facilities)

Thanks!

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