

INDICATORS AND METRICS TO ASSESS NIOSH RESEARCH PROGRAMS

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Board of Scientific Counselors
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BACKGROUND

Science and Technology Policy Institute: Federally Funded Research and Development Center (FFRDC) chartered by Congress in 1991

Mission: to provide rigorous objective advice and analysis to the Office of Science and Technology Policy (OSTP) and other Executive Branch agencies, offices, and councils

Funding: administered by the National Science Foundation (NSF).

IDA Science and Technology Policy Institute has managed STPI since 2003.

STUDY OBJECTIVE

Develop framework for integrated research performance measurement

Define key performance indicators for research programs at NIOSH

Focus on measuring impact on workplace health and safety

Not an evaluation of any specific program

STUDY METHODS

Multi-method Approach

Interviews of intramural and extramural reserachers

Benchmarking impact metrics with peer agencies

Review of comprehensive project reports from NIOSH
program planning and management database for FY10 –
FY12

- Construction
- Hearing Loss Prevention
- Nanotechnology
- Healthcare

STUDY RESULTS

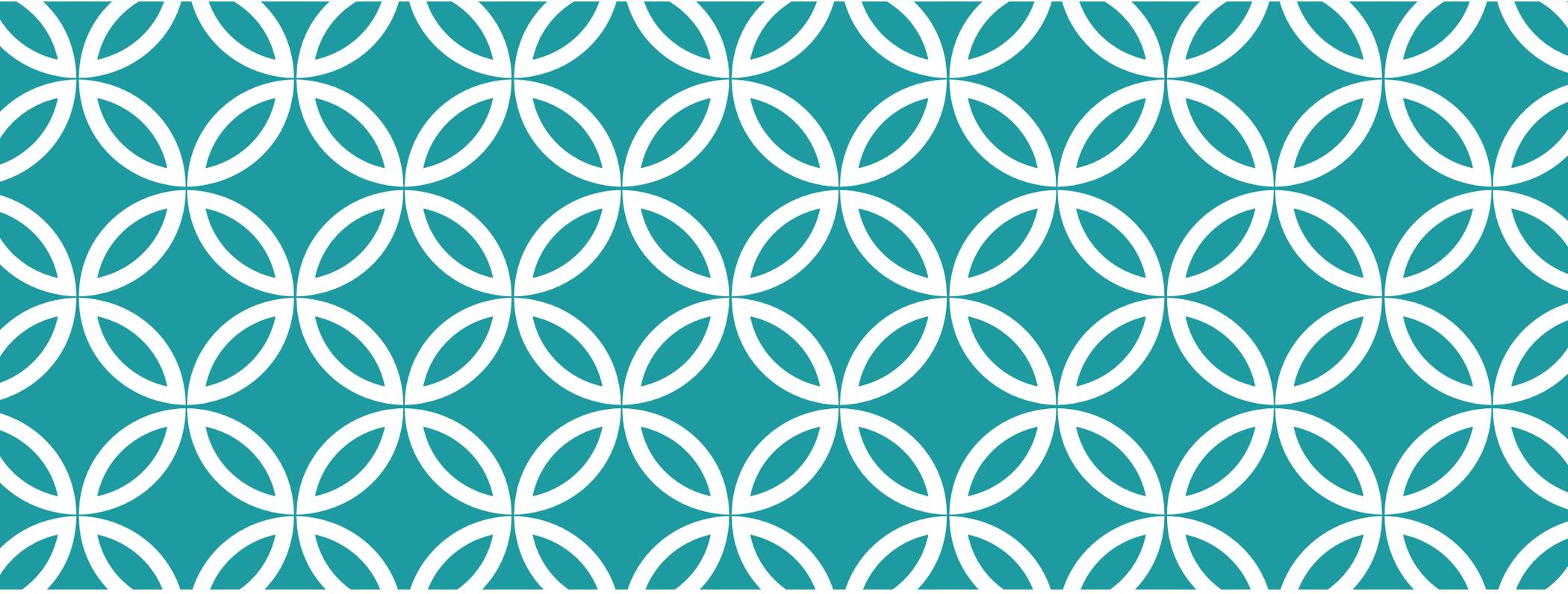
Key Findings

Recommendations

Conclusions

Logic model for each type of research activity

Output, outcome and end outcome indicators



KEY FINDINGS

STPI Report

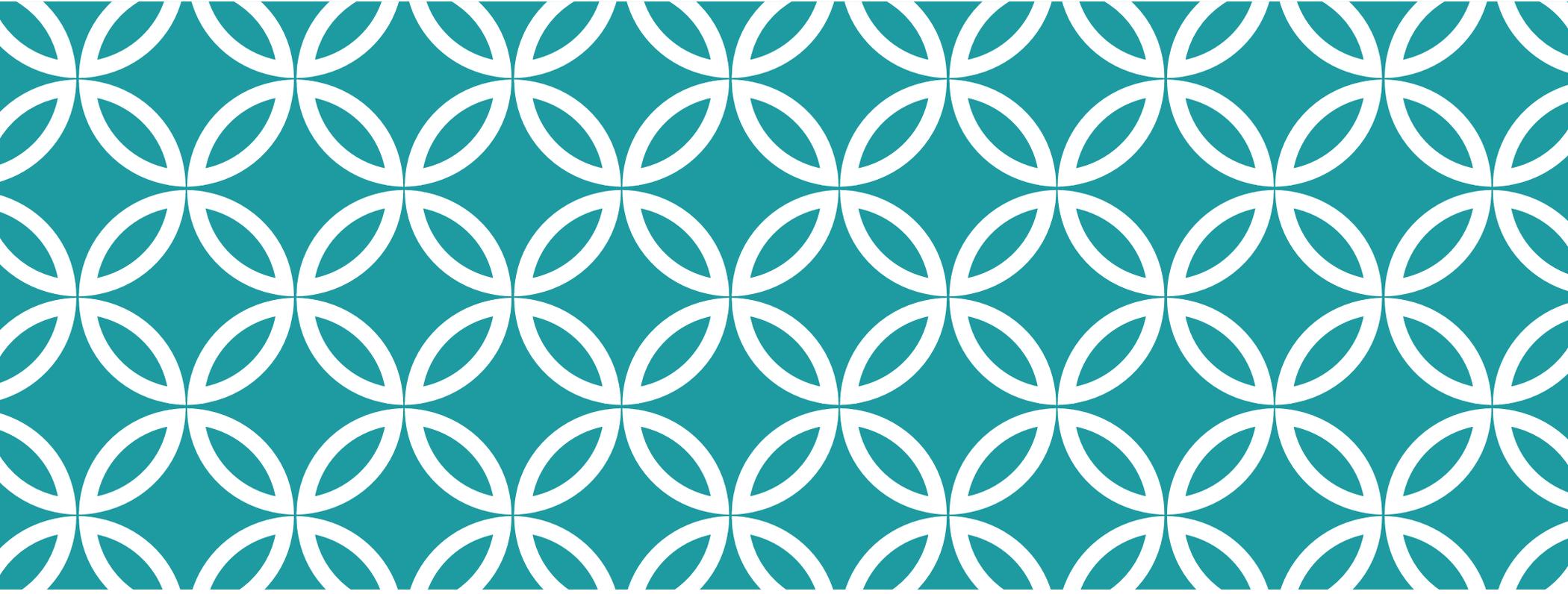
KEY FINDINGS

1. Breadth of NIOSH research

- Core set of activity types and outputs across all research projects
- Beyond core set, variety of types of outputs by different types of research and diverse partnerships engaged to translate research

2. Measuring end outcomes

- NPPM useful to track project completion, not to assess intermediate or end outcomes
- End outcome data difficult to gather, typically anecdotal and not easily connected causally
- End outcomes may take 10-15 years to emerge
- Enhanced surveillance systems are essential for measuring end outcomes of NIOSH funded work



RECOMMENDATIONS

STPI Report

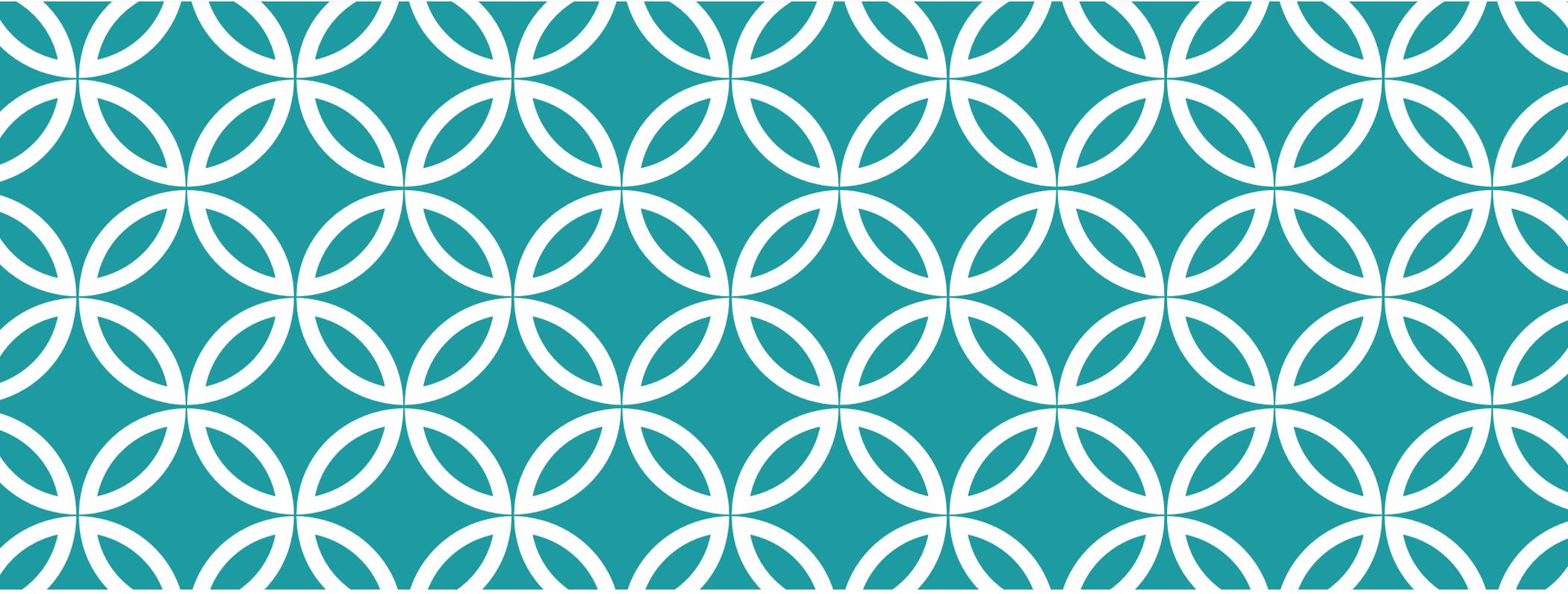
STPI REPORT RECOMMENDATIONS

1. NIOSH should consider applying differential metrics to each category of research.

The following categorization may be useful:

- Basic or etiological
- Intervention
- Translational
- Surveillance research

2. NIOSH should consider focusing its research evaluation on measuring outputs and short-term outcomes that are dependent mostly on its own activities.



CONCLUSIONS

STPI Report

STPI REPORT CONCLUSION

If determining causality is a key requirement, several supplementary efforts are needed:

- Increase agency's investment in surveillance
- Identify areas where research may have been impactful through qualitative studies
- Expand pool of research evaluated to include comparison groups of non-NIOSH research
- Conduct systematic surveys of stakeholders

HARMONIZED MODEL OF INDICATORS AND METRICS

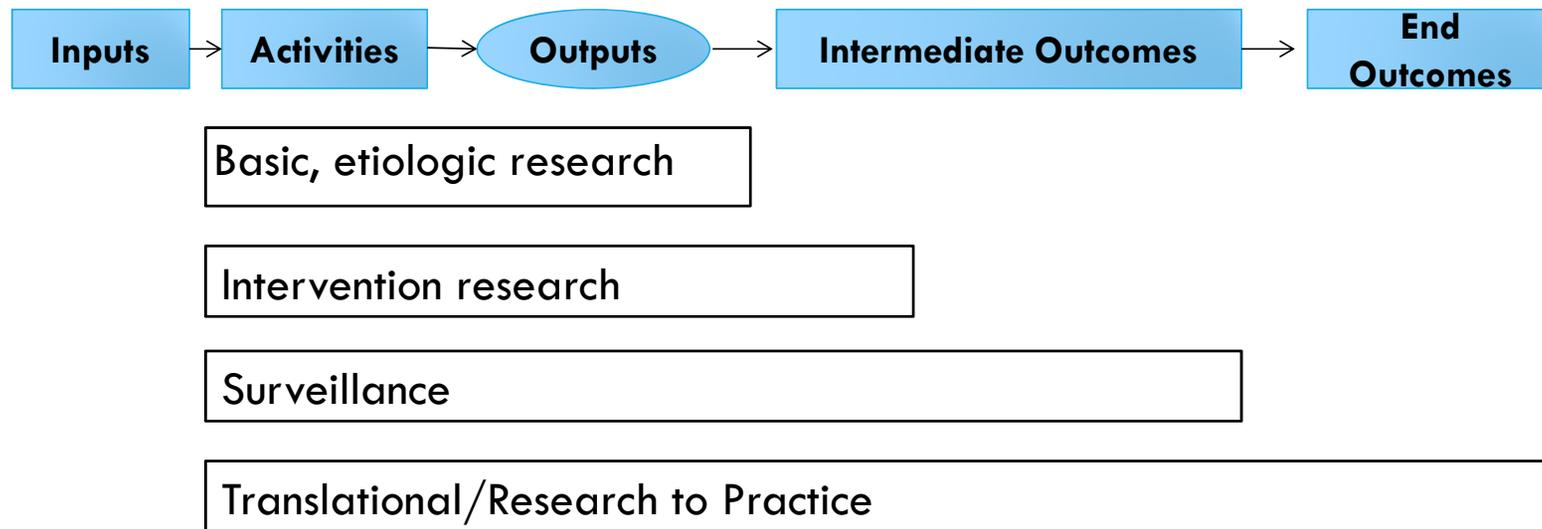
Reviewed STPI logic models for each of 4 types of research activity: 1) Basic/etiologic; 2) Intervention; 3) Translational and 4) Surveillance research

Harmonized Short Term Outcomes to NIOSH definition of Outputs and Intermediate Outcomes

Identified Core and Differential Outcome Indicators

Developing qualitative and quantitative metrics for Intermediate Outcome indicators

LOGIC MODEL FRAMEWORK



Different metrics for different types of activities

Framework for Indicators and Metrics of NIOSH Research Impact (April 2015)

INPUTS	ACTIVITIES	OUTPUTS ¹	INTERMEDIATE OUTCOMES ²	END OUTCOMES
Production Inputs <ul style="list-style-type: none"> • Budget • Staff • Facilities • Management infrastructure 	Basic/Etiologic Research	Publications	<u>Core</u> Research used in setting standards, guidance, or policy	Reduced exposure to workplace hazards
	Intervention Research	Training/educational materials	Recommendations adopted by manufacturers, trade associations, or others	Reduced workplace injuries, illnesses, and deaths
	Translational Research	Websites	Technology adopted	Improved health and wellbeing of the workforce
	Surveillance Research	Blogs	External organization disseminate outputs	
Planning Inputs <ul style="list-style-type: none"> • Customer/Stakeholder inputs • Partnerships • Congressional earmarks • Surveillance data • Workers' compensation data • Previous basic, etiologic, intervention, and translational research • HHEs • Health and safety standards³ 		Social media	Increased awareness of OSH issues	
		Presentations	Increased stakeholder investment in OSH research and service	
		Databases	Other researchers build on knowledge to pursue additional research or service	
		Trainees	<u>Basic/Etiologic</u> Other researchers use knowledge as conceptual basis for additional basic or applied research	
		Technology	<u>Intervention</u> Intervention strategies adopted by others	
		Patents	<u>Translational</u> Partners assist in tracking progress of translation efforts Training programs/ materials adopted	
		Standards	<u>Surveillance</u> Use of new surveillance methods by others	
		New or improved methods		
		New or extended partnerships		

¹ Outputs are the direct result, or products, of the activities.

² An intermediate outcome is when a stakeholder external to NIOSH uses the knowledge or products generated by activities.

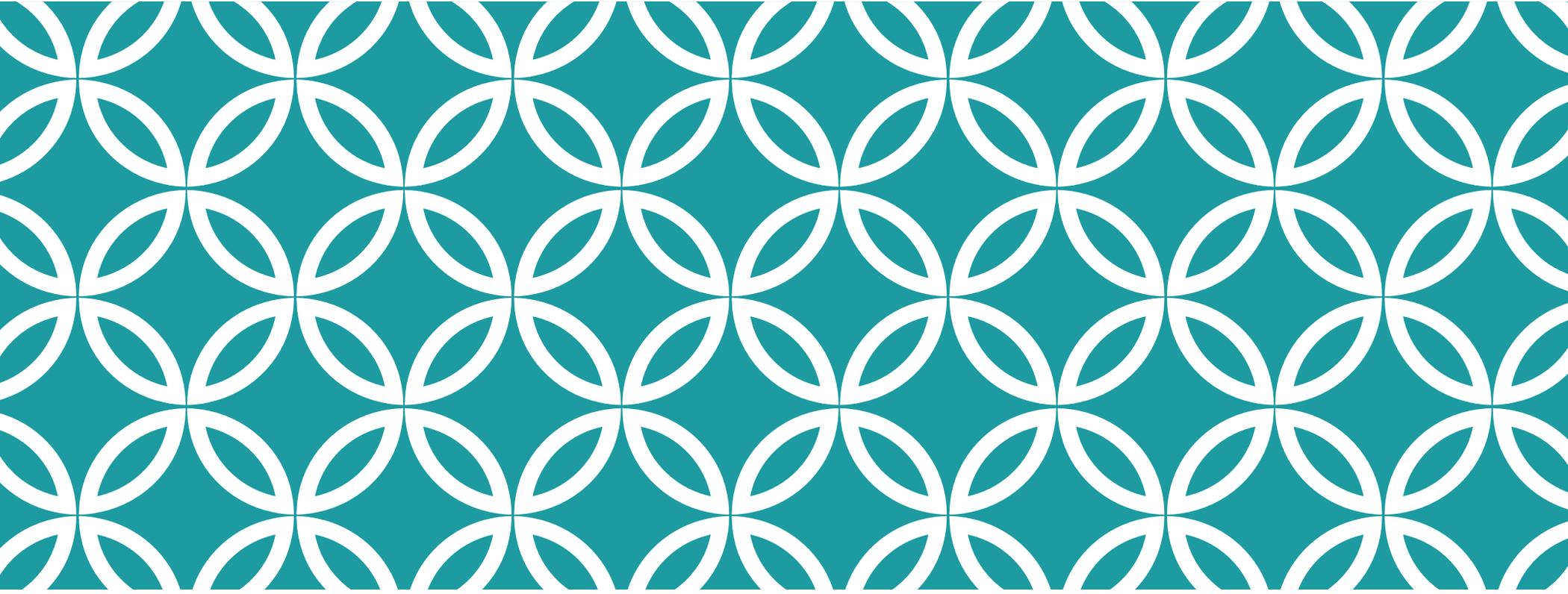
³ Includes international safety standards and consensus standards.



NEXT STEPS

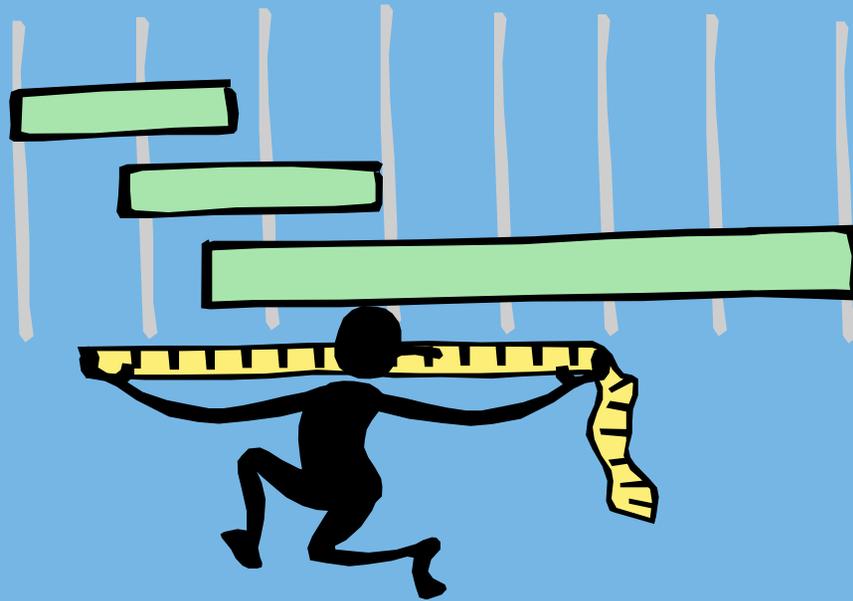
Complete qualitative and quantitative metrics for intermediate outcome indicators as appropriate

Changes ready for FY2017



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Discussion



THANK YOU

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