

1 **The Hong Kong Manifesto for Assessing Researchers:**
2 **Fostering Research Integrity**

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4
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32 *Background*

33 If research is going to benefit society it needs to be prioritized, designed, conducted and reported
34 according to the principles and standards of individual and organizational research integrity.
35 From at least the 1960s there has been a recognition of problems throughout the research
36 enterprise (1). Almost 40 years ago Altman noted the misuse of statistics was unethical (2); in a
37 recent national US survey nearly 400 consulting statisticians reported on requests from
38 investigators to engage in inappropriate statistical practices, presumably to enhance the
39 likelihood of publication (3). In 2014 *The Lancet's* 'waste in research' Series reviewed problems
40 across the research spectrum, from the prioritization of research through to reporting of research,
41 typically through publications (4). One impact of these problems has been an increase in
42 publication retractions and a crisis in reproducibility (5,6). A recent egregious example of
43 irreproducibility in biomedicine was an effort by Bartoldy and colleagues to replicate 133
44 exercise interventions recommended in 10 international practice guidelines of osteoarthritis of
45 the knee (7). No intervention was completely described (median description = 33% of the
46 essential information was provided). This has direct impact on patient care. Across multiple
47 disciplines the United States' National Academy of Sciences report 'Fostering Research
48 Integrity' (8) noted that detrimental research practices, such as fabrication, falsification, or
49 plagiarism and questionable research practices, pose substantive risks to the validity of and the
50 trust in science.

51

52 Yet some researchers have seen their careers advanced partly due to adopting damaging research
53 practices. Several scholars have noted the moral and ethical perils of this situation (9,10).
54 Promotion and tenure occur because researchers have been able to satisfy the current criteria
55 needed to advance their careers. These criteria are narrow, potentially flawed and not evidence-
56 based, and mainly concern counts of publications and citations; the journal impact factor (JIF)
57 and Hirsch index (h-index) are widely used. Most promotion and tenure committees focus on
58 easily collectable quantitative data with arbitrarily stated thresholds about the number
59 publications required in journals with particular JIFs. There is almost no focus on the content of
60 the publications or on qualitative measures, such as value to society or citizen involvement in
61 helping determine the research priorities. There is a growing awareness that current reward
62 criteria are of limited value, do not foster research integrity and might even function as a set of

63 perverse incentives (11,12). More appropriate reward criteria may help improve the impact of
64 research, and researchers, including its societal value and enhance research integrity within
65 academic organizations and beyond. How researchers are evaluated reflects what we value most
66 in the research enterprise and powerfully influences researchers' behavior, including research
67 integrity.

68

69 There is an emerging view that this is a crucial time in the movement of research assessment
70 reform; a movement that is crossing disciplinary and national borders. There is a window of
71 opportunity now to make changes that were previously thought impossible. It is important that
72 we take full advantage of this opportunity, striking the right balance between promising new
73 approaches and the possible harm of abandoning current assessment tools, which do serve as a
74 partial buffer against advancement based on personal connections of claimed reputation. Such
75 changes will have a greater chance of success with a cultural change and concerted effort
76 globally and across all disciplines. We need to make changes with the same care and scrupulous
77 standards we apply to research itself.

78

79 We hope that the Hong Kong Manifesto (HKM) will further enhance these efforts, ensuring that
80 the assessments of researchers are conducive to research integrity. Six principles to improve
81 academic assessments were proposed by a group of researchers, funders, academic
82 administrators and biomedical editors (13). Some of the principles are more conceptual while
83 others are operationalized to include several examples of indicators that can be used to assess
84 career advancement. The principles were discussed and amended by the authors of this article. A
85 draft version was made available on the website of the 6th World Conference on Research
86 Integrity with a view to get input from the conference participants. A revised draft will be
87 discussed in two focus track sessions during the conference and an updated version will be
88 presented at the final plenary session and made available for final comments. Finally, we
89 anticipate the formulation of the HKM outlined below will be endorsed by the Governing Board
90 of the World Conferences on Research Integrity Foundation (GBWCRIF) and the Steering
91 Committee of the Reduce research Waste And Review Diligence (SCREWARD). We envision
92 later updates and welcome suggestions of other indicators, particularly if there is a strong
93 conceptual rationale and an evidence base for them. What follows is a brief description of the

94 principles, the evidence-base for their inclusion, and how they can be implemented into a 21st
95 century assessment of researchers. The HKM is aimed at a broad spectrum of players, especially
96 institutions and funders.

97
98 While we consider the principles important, their usefulness will depend on active
99 implementation strategies. Along with the HKM we have included a Word document that
100 provides readers with an opportunity to share any general comments about the HKM and specific
101 examples of implementation at their organization of interventions related to any of the six
102 principles. Such information will help us develop an effective tool box for any organization
103 interested in ways to implement good research integrity practices related to the six principles.

104

105 ***Principle 1: Contributing to societal needs is an important goal of scholarship and new***
106 ***knowledge.***

107

108 Context

109 Understanding ourselves and our culture is a societal need, as is satisfying curiosity. To
110 demonstrate impact is complex, not necessarily a causal exercise, can take considerable time to
111 occur, if at all, and is likely difficult to demonstrate in most instances. Assessing research impact
112 is a rapidly emerging multi-disciplinary field (14).

113

114 Evidence

115 Conducting research that assesses the merits of interventions or outcomes that are not valued by
116 intended users is likely of limited value (15, 16). To better reflect societal values, citizen
117 involvement needs to be integrated into all phases of the research enterprise and society as a
118 whole, such as asking them to participate in research priority setting exercises or helping develop
119 relevant outcome measures. Community engagement also appears to be missing from career
120 advancement criteria (13). Transparent and truthful open access publications (and open science,
121 more broadly) and public communication are ways to facilitate value to society and enhance
122 research integrity.

123

124 Implementation

125 This principle likely requires considerable reflection and action by universities which do not
126 often articulate what they mean by societal value or knowledge dissemination beyond, for
127 example, commercialization and academic incubators. Several engagement activities to solicit
128 the perspectives of faculty members, citizens, and the university's community in which they
129 exist is likely a useful starting point. Similarly, there is a broad movement towards open science
130 and organizations should articulate how they are achieving this and how it is incorporated into
131 career advancement.

132

133 ***Principle 2: Assessing faculty should be based on responsible indicators that reflect broadly***
134 ***the contribution to the research enterprise.***

135

136 Context

137 Traditional criteria used to advance the careers of faculty are flawed and not evidence based.
138 More responsible indicators reflecting a greater focus on evidence and research integrity should
139 play a more prominent role in faculty hiring, promotion and tenure.

140

141 Evidence

142 The quantity of publications and total volume of grants are still dominant metrics used by
143 universities for rewarding their faculty (13). Along with 'simple' citation counts these metrics
144 should be downgraded in any revised promotion and tenure scheme. This is also the same for the
145 JIF and the h-index. Both criteria are key incentives to career advancement as is providing fiscal
146 rewards to academics for publishing in certain journals (i.e., merit pay) in many parts of the
147 world (17,18). These are not responsible indicators and likely tell universities little about their
148 faculty members. The JIF or h-index tells universities very little about the quality of a specific
149 publication and is not a good predictor of future citations. These metrics can be gamed and
150 provide little information about a publication's contributions to science; one of the most highly
151 cited (later discredited and retracted) papers advocated against vaccinating children for measles,
152 mumps, and rubella (19). For the research enterprise to work meaningfully citizens need to be an
153 integral part of the enterprise. Similarly, researchers need to openly make their full study
154 protocols available with a view to facilitate reproducibility and to detect selective reporting (20).
155 Prospective registration of research is associated with increased publication quality (21); sharing

156 data is associated with increased citations (22); and patients support of sharing their data (23).
157 Incentivizing and rewarding these, and similar behaviors, will ensure promotion and tenure is a
158 step towards robust research integrity.

159

160 Implementation

161 Academic institutions, funders, and journals should explicitly endorse efforts to reduce the
162 importance of JIFs and other similar metrics when assessing faculty (e.g., 24,25) and make this
163 known to their constituents. Promotion and tenure committees should be explicit about giving
164 less weight to these metrics when considering career advancement. Integrating and rewarding
165 responsible indicators when assessing researchers will help ensure that research integrity and
166 evidence are central to career advancement. Research institutions will need to prepare the
167 landscape to ease the implementation of rewarding responsible practices. For example, to
168 facilitate data sharing, it is likely that the FAIR (Findability, Accessibility, Interoperability and
169 Reusability) principles will need to be in place (26). Similarly, implementation of data sharing as
170 a career advancement reward will be enhanced if universities, perhaps through their library
171 system, include educational outreach about FAIR and other data sharing questions. Data sharing
172 is not without costs and universities may need to make funds available to help researchers
173 prepare for data sharing. Funders can help as well by allowing grant applicants to include these
174 expenses as allowable costs in their budget requests. Similarly, funders can implement policy
175 such that data sharing is an expectation of all grant applications.

176

177 More generally, researchers need to be part of any implementation process of this principle and
178 the other principles as well. To assess the effects of implementing this principle universities can
179 audit (random) a sample of CV publications for data sharing statements, prior study registration
180 and other responsible indicators.

181

182 ***Principle 3: we should reward publishing and/or reporting all research completely and***
183 ***transparently, regardless of the results.***

184

185 Context

186 Reporting biases (e.g., publication bias, switched primary outcomes without attribution, and
187 spin) are a substantial problem and call into question the truthfulness of scientific enquiry and
188 undermines research integrity and society's trust of science.

189

190 Evidence

191 In an update of their previous review of journal publication following initially presented
192 abstracts, Scherer and colleagues report on data collected from 425 studies (27). Publication bias
193 is on the rise: only 37% full publication compared to 44% in 2007. Furthermore, the frequency of
194 reporting biases at about 30% is unacceptably high (28), which diminishes the completeness and
195 trustworthiness of bodies of knowledge (29). Even though there is evidence for the utility of
196 reporting guidelines to improve the completeness and transparency of reporting they are not
197 being used sufficiently. For example, editors do not sufficiently recommend their use to peer
198 reviewers (30). Promotion and tenure committees appear silent on the importance of registering
199 protocols and data analysis plans and on publishing completed studies and their associated data,
200 code, and materials (31).

201

202 *Implementation*

203 Academic institutions need to update their career advancement regulations (and make them
204 transparent) to reward faculty who register their clinical research protocols (e.g., in
205 clinicaltrials.org or Open Science Framework). Faculty also need to be rewarded for all
206 completed research, including registered studies that are fully completed and reported. When
207 submitting CVs to their promotion and tenure committee, faculty can ensure that each
208 publication includes: a registration number and/or DOI and reporting guideline used, where they
209 exist (e.g., 32). Some disciplines will have different mechanisms to ensure transparency,
210 completeness, truthfulness, which are pillars of research integrity; these should also be
211 incorporated into promotion and tenure guidance. Funders can also invoke policies such that
212 nominated principal investigators cannot apply for new grants without making publicly available
213 previous research funded by funders.

214

215 To assess the effects of this principle, promotion and tenure committees can use (or adapt)
216 automated tools to provide data about registration (e.g., trials tracker

217 <https://trialstracker.ebmdatalab.net/#/>) and quality of reporting (e.g., www.statreviewer.com). To
218 foster openness and transparency these audits should be fed back to faculty members and overall
219 anonymized results made available on universities web sites. Solutions have also been proposed
220 for the social sciences (33,34).

221

222 ***Principle 4: The culture of open research needs to be rewarded.***

223

224 Context

225 Openness is an emerging principle across many disciplines with several indicators, examples of
226 which are discussed below.

227

228 Evidence

229 A considerable number of public budgets is used to fund research; its results can have profound
230 societal consequences. Therefore, being open and transparent about the design, execution and
231 results of scientific research is important. Transparency is not only essential for the ability to
232 detect biases when they occur (29; principle 3) but may also prevent them from occurring and
233 restrict other questionable research practices (35). These other misbehaviors can for instance
234 concern p-hacking or HARKing (Hypothesizing After Results are Known) and can effectively be
235 prevented by registration (36), including registered reports, of study protocols and data-analysis
236 plans (37).

237

238 To the culture of open research also belongs adoption of open access publication and data
239 sharing (38), preferably following the FAIR (Findable, Accessible, Interoperable and Reusable)
240 Guiding Principles (26). In the same line of reasoning open peer review, encouraging and
241 supporting the posting of preprints and post-publication peer review can be advocated. All these
242 phenomena are rather new or emerging for most (but not all) disciplines. It is too early to say
243 what the best arrangements for open research and optimal transparency across disciplines are.
244 What is clear is that faculty should be incentivized and rewarded for transparency; this is in
245 keeping with robust research integrity.

246

247 Implementation

248 It is important that the assessment of researchers also contains criteria and indicators that reflect
249 the way the candidate contributes to the culture of open research. It seems possible to base this
250 judgement on the approach used by the Transparency and Openness Promotion (TOP) guidelines
251 (39). These guidelines were designed to reflect the level to which scientific journals have
252 adopted or wish to adopt the culture of open research. With some minor adjustments TOP
253 guidelines can probably be used for the analysis of the CV and the list of publications of
254 individual researchers.

255

256 Some aspects of open science are not yet included in the TOP guidelines, like being engaged in
257 open peer review, the usage of preprints and utilizing post-publication peer review. These
258 indicators might be added when assessing researchers. Furthermore, also in assessing the
259 adoption of a culture of open research it is important to strike a fair balance between quantitative
260 and qualitative indicators and to take the context into consideration (discipline, topic field,
261 institute, funding climate etc.).

262

263 ***Principle 5: Recognize and reward a broad range of research activities, such as innovation***
264 ***(including out-of-the-box thinking), replication, synthesis, and meta-research.***

265

266 Context

267 Currently rewards have been focused on quantitative metrics that can be gamed. Rewards need to
268 be broader with a rationale and evidence base.

269

270 Evidence

271 When deciding on research priorities and societal value of research, it is not always immediately
272 clear whether an idea or hypothesis will lead to the desired outcome. So-called blue-sky research
273 building on accidental findings or curiosity-driven research based on out-of-the-box thinking
274 should be possible and encouraged in an academic reward system that values societal progress
275 (40). For example, the discovery of graphene at the University of Manchester, UK, was the result
276 of Friday afternoon discussions outside the normal research activities (41). Commercial entities,
277 such as Google and Deepmind, are investing in this kind of research by employing researchers
278 with the understanding that not all efforts will immediately lead to important outcomes. The

279 short-term nature of academic research assessment exercises and reward cycles make this kind of
280 research less attractive for funders, institutions and individual researchers. Equally, replication
281 studies or research synthesis efforts are often not regarded as innovative enough in research
282 activity assessments despite their importance for the trustworthiness of research (42) or for the
283 summary presentation of all available evidence, respectively (43,44). Meta-research as
284 practiced, for example at METRICS (Stanford, USA) (45) and QUEST (Berlin, Germany) (46), a
285 recent phenomenon, is important to inform and improve research practices and therefore
286 contribute to make research more reliable and relevant.

287

288 Implementation

289 A reward system for the benefit of society and one that encourages trustworthy and important
290 research needs to take the different types of research into account. Different indicators and
291 criteria need to be developed that are relevant to these different types of research. This includes
292 different timeframes of assessment for different types of research. For example, the importance
293 and relevance of blue-sky research might only become apparent over a researcher's lifetime.

294

295 ***Principle 6: Include the range of contributions to advancing research endeavors in the***
296 ***assessment and reward structure.***

297

298 Context

299 Researchers also perform other tasks that are not research in the strict sense although essential
300 for the quality and climate of research in general, for example grant and journal peer reviewing,
301 and mentoring.

302

303 Evidence

304 Research assessments frequently just consider publications and funding income. Other research-
305 related activities are given less importance in the current reward system. Yet, for instance peer
306 review remains the cornerstone of quality assessment and contributions to an overall
307 improvement of research infrastructure and climate would go beyond an individual-centered
308 approach for assessment. How best to do this without creating further barriers and tick-box
309 exercises, however, has long been debated (47). However, any reward system that has the whole

310 research enterprise at heart and aims to foster a climate conducive to trustworthy and useful
311 research with the highest regard to integrity, needs to find ways to incorporate these vital roles
312 into its overall assessment structure

313

314 Implementation

315 Give credit and develop indicators for peer review activities and timely, constructive comments
316 on research by other authors. Funders, institutions and journals can develop policies to
317 meaningfully reward researchers for contributing to a broad range of activities that enhance the
318 activities of these organizations and by default research and society. It is important to create an
319 open culture of education, mentoring, and learning about research planning, conduct, and
320 reporting with particular attention to research integrity. Activities that benefit the institutional
321 research culture and climate beyond an individual's conduct need to be part of the reward
322 system.

323

324 *Dissemination, endorsement and implementation*

325 Academic institutions are prime agents to disseminate and implement the HKM. They are the
326 home of current and future researchers where promotion and tenure assessments are carried out.
327 Funders and journals also need to enhance their efforts to downplay the reliance on the number
328 of publications and citation-based measures. Universities need to recognize that a range of
329 research behaviors should be valued, including innovation, including out-of-the-box thinking,
330 replication, synthesis, meta-research. Similarly, promotion of good science through mentoring or
331 public engagement is also of value and should meaningfully contribute to career advancement.
332 Other activities, such as peer review contributions to journals and funders, should also be part of
333 promotion and tenure as should contributions to research infrastructure and/or regulation. These
334 activities are currently largely missing from promotion and tenure committees (31). Universities
335 need to embrace research integrity practices and modify their current metrics to include
336 responsible indicators (48). Collectively, these organizations need to be vanguards for
337 implementing more evidence-based and qualitatively relevant indicators for assessing
338 researchers and rating universities. There may be academic institutions, funders or journals that
339 have implemented these principles or other ones. Sharing such experiences, whether successful
340 or not is important; we hope our Word document is a venue for this.

341

342 There are similarities between the principles we are putting forth and those put forth by others,
343 such as the Declaration on Research Assessment (DORA) (24). For example, implementing data
344 sharing in principle 4 is similar to DORA's third recommendation. Having more than one group
345 call for change will perhaps reinforce the message and speak to complementary audiences. There
346 are also differences between our initiatives and other efforts. For example, the HKM focus is on
347 ways to implement change that a broad range of players will find useful to implement. Similarly,
348 the HKM has a specific goal to strengthen and reward research integrity.

349

350 For the HKM to be successful requires robust implementation. Here we discuss how other
351 organizations can endorse and implement the manifesto. Beyond journal publication we are
352 developing adjuvant dissemination outputs. The World Conferences on Research Integrity and
353 the REWARD Alliance will make available the HKM on their websites. This includes the
354 manifesto, the signatories, some infographics about the manifesto for dissemination purposes, a
355 place to endorse it, translations into several languages (ongoing) and future implementation plans
356 (ongoing).

357

358 We need active ways for individuals and organizations to implement the HKM. We are inviting
359 individuals and/or organizations to deliver brief (2-3 minutes) YouTube testimonials as to how
360 they have implemented the HKM (categorized by stakeholder group). This approach can serve as
361 a pragmatic way for individuals and organizations to disseminate how they are endorsing and
362 implementing the HKM and as a nudge to others about implementation. Such efforts constitute a
363 'bottoms up' approach to implementation. Whether implemented at the local or national level,
364 changes in researcher assessment criteria should be fully documented and made openly available.
365 Institutions making changes to their promotion and tenure criteria and faculty assessment should
366 implement an evaluation component as part of the process. Evaluations using experimental
367 approaches are likely to provide the most internally valid results and may offer greater
368 generalizability.

369

370 It is likely hard for the GBWCRIF and SCREWARD to 'drive' implementation other than
371 explicitly acknowledge that it likely occurs in many ways (e.g., individuals writing to promotion

372 and tenure committees, institutions sharing their updated career advancement template) and
373 settings (e.g., local, regional). To help facilitate knowledge translation of the HKM key opinion
374 leaders should be included in any plan. The GBWCRIF and SCREWARD will provide regularly
375 audit and feedback on dissemination, endorsement and implementation data it receives. The
376 ultimate assessment of the HKM is whether there is an improvement in the scientific enterprise.
377 We will report any progress at the forthcoming QUEST/REWARD/EQUATOR conference in
378 Berlin in February 2020 and at the 7th WCRI in 2021.

379

380 We think the HKM is unique because the principles are driven by evidence, whenever possible,
381 and reflects a commitment to research integrity when advancing the careers of faculty. Current
382 university promotion and tenure schemes may well have been useful when initially developed
383 decades ago. They are out of step today and implicitly maintain the substantive problems of the
384 current research enterprise. We invite individuals and organizations to endorse the HKM and
385 help implement it.

386

387

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