REPORT ON NICE INTERNATIONAL'S ENGAGEMENT IN CHINA

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Submitted by Itad
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Results in development

Report

Report on NICE International's Engagement in China

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Conclusions are the sole responsibility of the author.

Acronyms

BOH	Bureau of Health[1]
CNHDRC	China National Health Development Research Centre
COPD	chronic obstructive pulmonary disease
CP	clinical pathway
DFID	Department for International Development
FFS	fee for service payment
HPH	Huangdao People's Hospital
MOU	memorandum of understanding
NCMS	New Cooperative Medical Scheme
NHFPC	National Health and Family Planning Commission[2]
NI	NICE International
NICE	National Institute of Health and Care Excellence
QCH	Qianjiang Central Hospital
THC	township health centre

[1] While the former Ministry of Health and National Family Planning Commission have been amalgamated into the National Health and Family Planning Commission, not all jurisdictions have completed the amalgamation. Some places still retain a Bureau of Health, pending amalgamation.

[2] Body amalgamating the former Ministry of Health and National Family Planning Commission.

1. Introduction

1.1. Overview of Theory of Change and Indicator Development

During 2013-2014, NICE International (NI) and Itad have collaborated to develop a Theory of Change for NICE International (see figure 1 below) and then develop a list of linked indicators that could be piloted to report against the Theory of Change (ToC).

The overarching Theory of Change for NI built on the country level Theories of Change that were developed for India and China, but was also designed to capture the other element of NI's work under the heading of "health diplomacy". This overarching ToC brings together the two main streams of NI's engagement and links it to the objectives of its work, unpacking the different levels from activities to longer term impact and beginning to articulate the key assumptions underlying each step.

Following development of the Theory of Change, a long list of indicators were collated which mapped to one or more elements. From this list, NICE International selected six indicators which were refined by Itad (in close consultation with NI):

1. % of sampled participants that attend training events on QS/CP held in hospitals, clinics or institutions who found that the training helped them implement the quality standard/clinical pathway and improve their practice
2. The extent to which stakeholders involved in the development of the QS/CP perceive value in the quality standard/clinical pathway and reasons why
3. Number and type of media reports (print and electronic) that reference the pilot
4. Extent of adoption of similar processes for QS/CP development in other locations
5. Number and depth of new partnerships developed by NICE International
6. Publication of legislation/regulatory circular enforcing the uptake of evidence-informed technology and service adoption (or disinvestment) decisions, including evidence-informed quality improvement mechanisms

To inform reporting on each indicator, data collection protocols were developed to guide the planning of country visits to India and China. The objectives of these visits, and associated document review, were two-fold:

- Reporting on progress of the pilot project based on the six indicators
- Piloting the data collection protocols, to inform refinement of a generic list of indicators and protocols that could be applied to any future NI country pilot project.

This report presents the findings of the China data collection process.

1.2. Overview of the Pilot Project in China

In 2012, NICE International and the China National Health Development Research Centre started implementation of a pilot integrating clinical pathways with other supporting systems for a limited number of conditions in three (subsequently four) counties[3] in China. Preliminary analysis carried out by the CNHDRC identified stroke and COPD as high priority conditions for development of clinical pathways: according to baseline analyses, stroke and COPD jointly account for more than two fifths of mortality in rural areas of China. County-level hospitals were chosen as the target of the intervention as it is believed that there is potential for strengthening standardisation of

[3] In line with common practice, 'county' is used here to refer to the administrative level of these units within the Chinese system. 'District', as used here, refers to a county-level administrative unit.

disease management at this level. Baseline analysis assessed county-level support and key local policy priories as well as existence of complementary IT systems and medical information databases in the counties evaluated.

Counties initially chosen for participation were Qianjiang District (Chongqing Municipality), Hanbin District (Shaanxi Province) and Jiaonan District (Qingdao City, Shandong Province, subsequently renamed Huangdao District). Wen County (Henan Province) was subsequently included. Counties were chosen based on understanding and enthusiasm for the pilot and local management capacity. Hospitals included in the pilot are believed to have a 'reasonably good' level of clinical practice and to be broadly representative of this kind of institution, as well as having, for the most part, well-developed information systems.

Counties included in the pilot had different levels of capacity and experience in implementing clinical pathways and/or payment reforms. Two of the project counties, Qianjiang and Hanbin, took part in the Health XI Project (World Bank-DFID China Rural Health Project) and under this carried out reforms integrating clinical pathways and payment reforms. Jiaonan was not part of the Health XI Project, but has implemented national clinical pathways policy since 2009, though this has not been integrated with payment reform. A previous round of collaboration between NICE and CNHDRC piloted clinical pathways for simpler interventions in a smaller number of counties.

China released national policy on clinical pathways in 2009, but this was not linked to other needed reforms, and this has been seen as limiting its effectiveness. In the absence of a number of core supporting systems, including ways in which public insurance agencies pay healthcare providers for services delivered (payment reform),[4] ways in which hospitals manage and incentivise staff to deliver appropriate levels of treatment, and supporting hard systems, including computer and IT systems, clinical pathways are limited in their ability to achieve the main aims of China's healthcare reforms.

Consequently, the NICE/CNHDRC project was designed as a pilot of an integrated reform ('clinical pathways+') in which clinical pathways are combined with other reforms, rather than as a standalone pilot of clinical pathways. Core components of pilot design included development of contextually-appropriate clinical/care pathways; development of related data management systems and software in project counties; negotiation and development of remuneration systems for medical personnel to increase their support for clinical pathways; standardisation of clinical behaviour, increasing quality of services and control unreasonable growth in medical spending; enabling hospitals to provide convenient, safe, effective and reasonably-priced services; improvement of capacity for evidence-based decision making; and promotion and propagation of a model of clinical pathways and payment reform (CNHDRC 2012a; 2012b; 2012c).[5] In addition, the scope of the pilot includes trialing of integrated care across levels of the health system (county, township, village).

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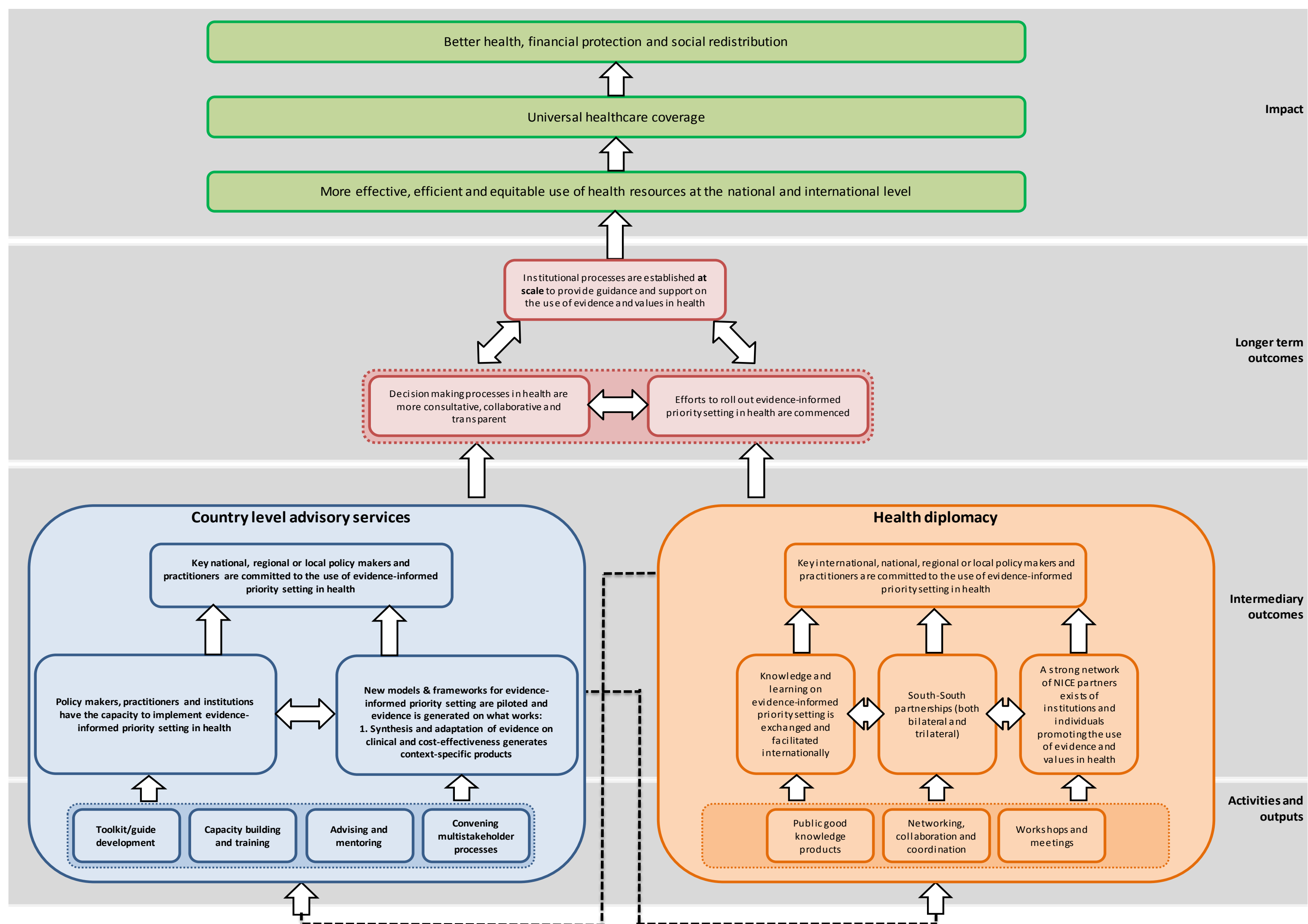
[4] China has approximately 95% coverage of rural health insurance, co-funded by government and user contributions. Since its launch in 2002, the New Cooperative Medical Scheme (NCMS) has principally relied on use of fee for service payments to healthcare providers. Reliance on FFS is inflationary, especially when combined with limited government funding for healthcare providers, as in China. Attempts are underway to reform payment methods in order to rationalize provision of services and control cost growth.

[5] See project note drafted by Lewis Husain, December 2012 (Husain 2012); CNHDRC/NICE 2013-2014 progress report (CNHDRC 2014).

Figure 1: A Theory of Change for NICE International



2. Methodology

2.1. Overview

Site visits were carried out in November 2014. In autumn 2014, in preparation for site visits, short discussions were held with CNHDRC staff in Beijing. These were helpful in understanding the overall scope of the pilots, the state of implementation, and the degree to which lessons from the pilot have been taken up by higher levels of government.

Document review, and discussions with CNHDRC preceding site visits, made clear the degree to which the China pilot is an integrated reform of 'clinical pathways +', in which, clinical pathways are bundled with other supporting systems, as above.[6] Following document review and discussions with CNHDRC, an indicator on supporting management systems (Indicator 7) was included to capture this.

Lewis Husain carried out the site visits and visits were supported by CNHDRC. Sites visited were Huangdao District (Qingdao City) and Qianjiang District (Chongqing Municipality), with each visit lasting 1 to 1.5 days. In both site visits, meetings were arranged with stakeholders from all key groups. For the most part, meetings were held in Huangdao People's Hospital (HPH) and Qianjiang Central Hospital (QCH). The format of the visits was not identical. In Qianjiang, hospital management convened a highly useful initial multi-stakeholder meeting and gave a very comprehensive overall presentation on the state of implementation of the pilot. This was a very successful strategy.

2.2. Data collection

During site visits, the main mode of data collection during site visits was key informant interviews with stakeholders from groups identified as key to the implementation of the pilot. These were identified in discussions with CNHDRC and included:

- Local government bureaus (bureaus of health and bureaus of health insurance)
- Hospital management
- Clinical staff, including nursing staff
- Other support staff in hospital

November 2014 data collection was limited to the two site visits and did not include central-level experts involved in development of clinical pathways. China site visits totaled 2.5 days. A total of nine interviews were carried out in Huangdao, and eighteen in Qianjiang. The list of interviewees is given in Annex A. Interviews were conducted according to semi-structured protocols developed in advance of the visits and translated into Chinese. Lewis Husain carried out interviews, wrote up notes and carried out analysis.

2.3. Analysis

Interview records were coded for relevant themes and these provided the basis for analysis and write up. As with the India case, interviewing and subsequent analysis of findings of the China site visits uncovered a large amount of rich information relating to project implementation, not all of which was captured by the existing indicator framework. To capture these elements, this report has been structured, by indicator, into the following sections:

[6] Note that this builds on an earlier and less technically complex pilot of clinical pathways for surgical procedures carried out by NICE and CNHDRC, also designed to include supporting payment reforms.

- An introduction to the indicator, in terms of the information it was intended to capture, and any reflections on the indicator or process that should be considered when interpreting the findings.
- Findings against the indicator.
- Broader findings around issues related to the indicator.
- Implications of data collection process for refinement of the indicator and/or data collection protocol.

2.4. Limitations

Access to informants

Overall, access to informants was good, but with limitations. Both counties were extremely cooperative in allowing access to members of the local health and health insurance bureaus. Access to clinical staff was less uniform: in Qianjiang, access was very good, and the site visit was personally escorted by management of QCH. In Huangdao, access was more limited, mainly due to time constraints. In most cases, interviews with clinical staff were short, given that time spent on this was time spent away from other duties. This tended to lead to a relatively narrow focus on core issues and precluded wider discussion.

Format of interviews

The data collection protocol devised in advance of the China site visits specified use of focus group discussions. Practically speaking, it was impossible to coordinate multiple clinical staff without this having an impact on routine hospital functioning. Instead of focus groups, interviewing relied on two main approaches: one-to-one (sometimes one-to-two) interviews with hospital staff, most of which were carried out in the presence of multiple other observers, including CNHDRC and local staff/hospital management, and large-scale 'presentation-style' meetings convened by hospital management. Such meetings were convened in both counties and are a staple of Chinese management of such site visits. The Qianjiang meeting was particularly useful, bringing together multiple stakeholders and giving a comprehensive overall presentation on the state of implementation of the pilot; however, such meetings allow little flexibility in following up on interviewees' responses or carrying out detailed questioning.

Privacy

Both formats for interviews/meetings have a number of implications for privacy and therefore reported information. Multiple-stakeholder meetings function to ensure that everything is above board and there can be no question that what is said is anything but a sanctioned statement. However, the fact that hospital management and CNHDRC staff accompanied the interviewer at all times effectively resulted in mixed meetings at which managers and clinicians or nurses were both present. In some cases, it is possible to expect that this colored answers to questions. Overall, however, this was a necessary part of the process and we do not believe this substantially influenced interviewees' responses.

Time

Site visits lasted from 1 day (Huangdao) to 1.5 days (Qianjiang). One day for a site visit of this kind is very limited; 1.5 days is much more useful. Despite document review and discussions with CNHDRC prior to the site visits (and detailed subject experience of the evaluator in this area) site visits are part of a very steep learning curve. The complex nature of the reforms being carried out, and complexity of the institutional system under study, means that time is spent understanding the overall framework of what is going on, especially during the first visit. The first visit was not as productive as it could have been for this reason.

3. Findings

Indicator 1: % of sampled participants that attend training events on CPs held in hospitals, clinics or institutions who found that the training helped them implement the clinical pathway and improve their practice

The aim of collecting data on this indicator is to establish firstly the utility of the training in terms of implementation of the clinical pathway, and secondly to establish underlying reasons, in order to inform the development of future training events.

Data was collected against this indicator through interviews with clinical staff (principally department heads, doctors, and nurses; also government) in both Huangdao and Qianjiang. There are several limitations to the data. First, due to limited time, there is a limited sample size for Huangdao. In addition, there was insufficient prior definition of the sample of those who had taken part in training, meaning that in Qianjiang clinical staff from departments running clinical pathways developed without support from this pilot were also interviewed. Second, there are difficulties in carrying out interviewing on training / capacity building activities in the pilot sites. The integrated nature of the pilot, including not just clinical pathways, but other supporting reforms, and the involvement of multiple stakeholders in development of the pilot, and in the multiple forms of training carried out, make for a complex picture. Post hoc questioning on training may not be the most appropriate assessment strategy. This is discussed below. Third, questioning was modified slightly during the site visits to take into account interviewees' responses and dominant framings of the reforms being discussed.[7] The following analysis is predominantly narrative, given the small sample size and need to capture rich qualitative data.

Findings on the indicator

Training was judged to be good or very good by a majority of interviewees.

In Huangdao, a total of 3 people were asked about their judgement of the usefulness of training, including the Head of Huangdao People's Hospital and the Director of the Neurology Department and one doctor from that department. All respondents in Huangdao rated training as very good.

In Qianjiang, 13 people were asked about their judgement of the usefulness of training, including:

- Government: Director of Qianjiang Bureau of Health, Director of Qianjiang Health Insurance Agency
- Hospital management: Director of QCH
- Functional departments within QCH: Director of Clinical Pathways Department, Director of IT Department
- Clinical departments: Obstetrics Department (Vice-Director), Gastroenterology Department (Director), Neurology Department (Director, clinical doctor, two nurses), Orthopedic Department (two doctors), Surgery Department (Director).

All but one person interviewed rated training as either very good (n=8) or good (n=5) in helping them carry out the pilot. The one exception to this (interviewee , QCH) stated that she had been involved in a learning process, rather than training per se. When asked if training had been enough to allow her to implement CPs, her response was that she didn't see implementation of clinical pathways as a clinical matter, but a management matter (see

[7] For example, questions included in the protocol asked the extent to which clinical pathways had allowed clinicians to improve their practice. Reactions of clinicians asked about clinical pathways predominantly framed these as a management measure designed to limit their autonomy and control their behaviour, rather than a means of improving clinical practice,. Given this, a more relevant question to ask was: what changes clinical pathways had brought about in doctors' clinical practice and outcomes, rather than to frame clinical pathways in terms of improvement in practice.

below). This appears to be largely a barrier arising from framing of the question, rather than a criticism of training per se.

The clearest expression of significance of the training carried out under the NICE/CNHDRC pilot is the way in which it has changed understandings in the pilot counties.

Huangdao

At the management level, Huangdao People's Hospital described the training they had received as 'revolutionary', stating that it had changed the way they think about treatment. According to one senior interviewee, before this, clinicians based treatment on their own experience; now this is based on evidence. Clinical staff described training as having changed the way they think. Examples include that training introduced the idea of early recovery (for stroke). Following introduction of the idea by NICE International, they now encourage patients to not remain immobilized in bed for long periods following treatment and to engage in recuperative activities.

Qianjiang

The importance of training and the project in changing understandings should not be underestimated. A considerable number of interviewees said that the CNHDRC/NICE project had changed ways of thinking, giving them new ways of understanding what they're doing. For some interviewees, notably at the management level of QCH, and in Qianjiang Health Insurance Agency this was the most important contribution of the project. Interviews provide very good testimony on the importance of the CNHDRC/NICE project. However, it should be noted that it is hard to attribute this solely to the training. It is more the result of a combination of the training and implementation of clinical pathways and associated reforms.

Examples include the following:

1. Management of QCH cited a visit by Tony Rudd and how discussion of stroke treatment in the UK had influenced their thinking.[8] According to interviewees, both Qianjiang and experts from Beijing involved in the pilot initially found it hard to believe it possible to limit inpatient stay to five days – Chinese guidelines state 20 days. Understanding this required a change in thinking, decomposing the process of stroke care into different parts, and separation out of recuperation (*kangfu*). QCH management described the change in thinking brought about by the training as "extremely important" and the most important effect of the pilot.
2. The health insurance bureau state that the pilot has broadened horizons: One senior interviewee stated that he hadn't previously come across ideas of evidence-based medicine or evidence-based policy making. According to him, the main ways of thinking about the management of health insurance among agencies like his in China are around a limited number of concepts, mainly maintaining fund security – i.e. they are simply payers, with little understanding of medical matters and, given the compartmentalized nature of China's government system, they have little incentive to think about the interests of other departments or stakeholders. Training and participation in the pilot changed his understanding, allowing him to see the importance of balancing the interests of all main stakeholders (hospitals/doctors, insurance agencies and patients). He believes this has given him a new perspective, independent of that of his department. He jokingly says that his bosses describe him as having been 'brainwashed' by the bureau of health.
3. For the management of QCH, the project has brought a major evolution in the way they manage clinical pathways. They are very proud of the management system that they have put in place and progressively refined

[8] Professor Tony Rudd, Consultant Stroke Physician, National Clinical Director for Stroke NHS England, London Stroke Clinical Director.

since the beginning of the pilot. An important indicator of this is the hospital's own internal reports on management of clinical pathways. When QCH started implementing CPs, reports were limited to a few pages. They are now substantial documents, which provide a much more complete picture of implementation of CPs, allowing more detailed management of personnel, target setting, etc, by the hospital. Note however, that this is traceable to training received in Beijing through CNHDRC. See comments below on scope of training.

Findings related to the indicator

The main finding related to the indicator is that a composite, integrated, pilot involves a lot of activity which fosters learning of one form or another. Much of this is practical, hands on learning, or learning by doing, rather than training per se. This is to be expected, but is hard to capture in an indicator tightly framed around 'training'. A more useful framing would be in terms of 'capacity building'. Main findings around the indicator:

First, there has been a lot of contact, and multiple forms of contact, between pilot counties and outsiders (including CNHDRC/NICE) over time. This includes some direct training through discrete training sessions held in Beijing and elsewhere, but also includes multiple forms of engagement, including visits by NICE specialists to the pilot counties for purposes of dialogue and supervision, visits from external experts organised by CNHDRC, ongoing contact between CNHDRC staff and pilot counties, through secondments, visits and other follow up, dialogue meetings between pilot counties, etc.

Second, a lot of training has been developed and implemented locally: most capacity building activity has been based on a 'training of trainers' model – training has been developed and carried out locally; this includes training organised at the scale of the hospital, as well as training organised at the scale of departments within the hospital.

Third, the scope of training carried out locally has been broader than clinical pathways, and has included use of management and information systems, costing, billing, etc. This is to be expected given the composite nature of the reform being implemented. Almost uniformly, interviewees stress the importance of practical training or exposure over theoretical. This is a positive finding.

Fourth, capacity development is ongoing, and is to be expected given the ongoing nature of the reform being piloted.

Fifth, CNHDRC have leveraged their contacts to get people to training sessions on areas not strictly covered by the project, but which have nevertheless been of use/importance. This is very positive.

Overall, focusing more broadly on 'capacity building', rather than 'training', would better capture work that has been done.

Implications of data collection process

Implications for future evaluation: moving forward, it will be important to delineate more clearly the following:

1. The current indicator is framed as a question on training on CPs. Consider modifying the indicator: at present this is narrowly focused on both training and capacity clinical pathways ("% of sampled participants that attend *training* events on *CPs* held in hospitals, clinics or institutions who found that the *training* helped them implement the *clinical* pathway and improve their practice").

This is too narrow, and risks (a) giving a distorted picture of work that has been done, and (b) underselling the impact of the project. The scope and form of capacity building work underway would be better captured through a broader indicator that was more explicit about the types of work being done, and the range of ways in which individuals' capacity is being developed.

2. Given the use of formal training in the pilot, if NI wish to strictly assess impact of this, changing the timing of data collection should be considered to link this more closely to instances of formal training. This should improve focus. Later follow up through semi-structured interviews, either face to face or by phone, would in

turn allow longer term impacts and reflections of participants on the training to be captured.[9] This is, in my view, a secondary consideration to point 1, above.

Recommended refinements to indicator and protocol

Following site visits and initial data collection on this indicator, the following changes are suggested:

1. The specific forms of capacity building that have been carried out should be specified in greater detail. It is recommended that data collection be broadened to include the wide range of capacity building activities that have contributed to project effectiveness.
2. Data collection, either through surveys or interviews, should be more closely linked to training and capacity building activities, as above.

[9] Note that, in contrast to the India case, there does not appear to be much attrition of staff in either of the hospitals visited during November 2014 staff visits, though this question was not specifically asked.

Indicator 2: The extent to which stakeholders involved in the development of the clinical pathway perceive value in it and reasons why

This indicator aims to explore the extent to which there is perceived value in the CPs processes and products, the extent to which they are embedded as a way of thinking and how the process of embedding and promoting acceptance was achieved. The intention was that qualitatively exploring these concepts and identifying the themes that emerged would allow the team to develop and refine the tools for future use and potentially reframe the indicator to allow deeper exploration of different elements of value.

Data was collected through interviews with those involved in the process of development of the clinical pathways in Qianjiang, and with those involved in implementing them (both Qianjiang and Huangdao). Due to a misunderstanding during visit planning, there were no interviews set up with those responsible for developing clinical pathways in Huangdao. Findings here present results of interviews with stakeholders involved in designing and implementing clinical pathways.

Findings on the indicator

The main value that stakeholders perceive in the project concern increasing efficiency, and reducing LOS, patient spending and drug use, rather than improving clinical practice or outcomes.

Stakeholders principally framed the project as increasing efficiency of healthcare delivery. Most interviewees state that implementation of clinical pathways has not substantially changed their clinical practice, and has not changed clinical outcomes, but *has* had an impact on use of drugs, LOS, patient spending, and other similar indicators. For example, the Director of Respiratory Diseases Department, QCH, described substantial reduction in LOS from implementation of clinical pathways. Note, also, the congruence between these evaluations and the official presentation of this pilot by QCH, which evaluates implementation on a number of key measures, including average length of stay, average per person/time inpatient spend, and average drug spend (see Indicator 7). In some cases at least, clinical pathways are credited with changing people's understandings and introducing new ideas, for example the Director of the Respiratory Diseases Department, QCH, said that before implementation of clinical pathways, they didn't think about average LOS.

Overall, interviewees described clinical pathways as 'standardising clinical behaviour' (*guifan yiliao xingwei*). Where this was discussed in more depth, the most common response from interviewees was that clinical pathways prevent over-treatment (*guo duo zhiliao*) (i.e. over-prescription of drugs, tests, etc). In the Chinese case, the implementation of clinical pathways, combined with a computerised management system controlling clinicians' behaviour makes it hard for clinicians to deviate from prescribed behaviour without withdrawing from the clinical pathway, in which case they must justify doing this, based on the circumstances of the patient.

In one case, one doctor (Neurology Department, QCH) stated that she thought implementation of CPs had improved patient adherence to programmes of care/treatment – clinical staff can cite the fact that proposed care/treatment is based on a formal protocol developed with external support, and this can help in persuading them to complete treatment. This use of external legitimacy in creating patient buy in for reforms may be worth exploring in subsequent assessment of the pilot.

In the majority of cases, clinical pathways were not believed to have changed health outcomes. For example, the Director of Neurology Department at QCH stated that they achieve the same outcomes as before but, following implementation of clinical pathways, they achieve these in a shorter time. This was confirmed by a number of other clinical staff from multiple departments. The main benefits derived from implementation of clinical pathways are described as reduced average LOS and inpatient costs. One response that typifies clinicians' responses came from a doctor in the Obstetrics Department of QCH, who said that "There has been no large

change – we treat patients according to their needs". These are principally efficiency considerations. Saying this, clinical practice has clearly changed (changes in prescribing behaviour, reduction of 'over-treatment', etc), leading to reductions in LOS, costs, etc. One CNHDRC informant pointed to a possible explanation for this discrepancy: many clinicians would not be inclined to say that clinical pathways had substantially changed their clinical behaviour, as this would imply that previous behaviour had been incorrect.[10]

Interviewees report that implementation of clinical pathways is changing doctor-patient relations.

In Huangdao, clinical staff described implementation of clinical pathways as having increase communication with patients, and that this has increased transparency and patient adherence to treatment. They state that communication gets easier over time. Initially, clinical pathways are a new concept, but once patients see that this is beneficial, and that it reduces costs, doctor-patient communication becomes easier. There have even been stroke patients who have been readmitted and asked to be enrolled in the clinical pathway. Equally, stakeholders stated that clinical pathways allow doctors and patients to avoid arguments over costs and length of stay – patients sign a consent form on admission, so all costs and treatments are clear up front. Overall, this appears to have changed the way in which doctors work with patients, creating a more transparent, collaborative and consensual relationship.

In Qianjiang, there is mixed evidence on how clinical pathways have changed the ways in which doctors work with patients. Most clinicians described introduction of clinical pathways as positive, mainly citing increased transparency over costs, though some stated that it may be hard to explain clinical pathways to patients, especially those with low levels of education. Some clinicians reported better relations with patients following implementation of clinical pathways (interviewee Gastroenterology Department, QCH), and increased patient trust (interviewee, Neurology Department, QCH).[11]

To an extent, the fact that clinical pathways have been developed with external support may help provide legitimacy in China's low trust healthcare setting. In some cases, for example, patients may be unwilling to accept e.g. reduced length of inpatient stay, or an oral medicine (as opposed to an injection), due to ingrained beliefs around what constitutes correct and normal practice. If doctors can cite a clinical pathway to bolster their case for this, however, it may make it easier for patients to accept. As above, this external legitimacy could be helping build doctor-patient trust and improve relations.

Development of clinical pathways has been through dialogue between central experts and local clinicians; to an extent, clinical pathways have been adapted to local circumstances.

Findings presented here relate only to Qianjiang. All interviewees involved in development of the clinical pathways described this as a process of dialogue with central experts over the CP framework document (*wenben*). This fits with CNHDRC's description of this process as one in which central experts were convened to develop CPs in response to reports submitted by the counties on their current ways of treating and dealing with certain conditions.

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[10] Note that EQ-5D questionnaires have been used in pilot counties since 2012 and will be used over the duration of the project (CNHDRC 2014). These would provide data allowing triangulation of the above.

[11] A 2014 report from Huangdao People's Hospital provides illuminating evidence of the range of reactions of patients introduced to clinical pathways, ranging from a belief that the hospital is attempting to enroll them in a clinical experiment to a belief that, given that costs are fixed, patients should be entitled to more or less treatment, as they see fit (Huangdao People's Hospital 2014, pp. 5-6).

Interviewees describe this as a process of adaptation of a protocol provided by central-level experts to local circumstances. It is unclear the extent to which these protocols were adapted during this process. According to both CNHDRC and to interviewees in Qianjiang, adaptation that occurred during this process related to specifying actual drugs to be used: nationally developed protocols would specify the chemical compound to be used under given circumstances, but the actual medicine (name and brand) to be used would be specified by the pilot counties based on provincial lists of approved drugs.[12]

Individuals involved in developing clinical pathways and in the pilot have been involved in diffusion activities.

Many interviewees have participated in meetings elsewhere to discuss and propagate the experience derived from their pilot related to CPs, management systems, development/operation of computer systems, and other components of the reforms they are running. However, for the most part such meetings appears to have involved dialogue with other pilot counties, more than non-pilot counties. One striking example of proactive diffusion activity is that Qianjiang have written a book about their reform. It is not clear whether there have been other publications on this by people involved in development of the pilot. Naturally, diffusion relates to counties' experience with the integrated reforms being piloted. This has some implications for Indicators 4 and 6 (see below).

All interviewees questioned about this stated that they would be happy to take part in a similar project in future, though there are reasons to believe that this question is flawed (see below).

Findings related to the indicator

The pilot is predominantly framed by stakeholders, whether government, hospital management, or clinical staff, as a management reform rather than a specifically clinical reform. This was especially true in Qianjiang, where the large initial meeting organised by QCH presented a PowerPoint presentation giving clear metrics of success of the pilot: average LOS, average payment per inpatient stay, and average drug spend. Broadly, this understanding is mirrored by clinicians. Success in implementing clinical pathways was described as principally a question of health insurance policy ("*yinggai shuo shi yibao zhengce de wenti*") (interviewee, QCH), and the main changes brought by clinical pathways were described as being in the change in payment method and the bundling of costs (interviewee, QCH), rather than in clinical practice. These indicators are important for showing improved functioning of the local health system, and are in line with aims of the project; however, interviewees' reports on changes in clinical practice are somewhat unclear. In principle it would be possible to analyse cost changes, LOS, etc, against health outcomes, assuming such data is included in reporting systems set up by CNHDRC.

Implications of data collection process

The Chinese pilot was designed as a composite pilot of 'clinical pathways +'. As currently framed, the indicator specifies assessment of stakeholders involved in development of *clinical pathways*. This is a narrow framing, given the breadth of the reform in question. In addition, there are two specific issues related to this indicator. First, this pilot has been led by county government and hospital management. It can be assumed that clinical staff, and even managers below the actual heads of the hospitals involved had no choice over whether to take part or not once their hospital had decided to carry out this process. Second, the question around willingness of stakeholders involved in development of clinical pathways to take part in a similar project in future is limited, for two reasons: all interviewees are predisposed to say that they would be involved in another NICE/CNHDRC project in future, given the prestige of the project and leadership commitment to this. Also, it is hard to know what a 'similar

[12] Positive lists of approved drugs are managed provincially, and there may be variation between provinces.

process' to the current pilot would be: this is a specific reform based on local needs. I believe that willingness to engage in any subsequent pilot would be based on specific assessment of value of that pilot.

Recommended refinements to indicator and protocol

The two most substantial suggestions for design of any future evaluation are as follows:

1. Broaden indicator to more specifically assess stakeholders' perceptions of value in the pilot (not just clinical pathways).
2. Link the indicator more closely to main stakeholders' own judgements of what would constitute success in implementation of this pilot (main indicators used in Qianjiang, for example, revolve around average LOS, drug spend, and costs).
3. Consider assessing changing health outcomes against outcomes reported here, if data are available and should this be a concern.

Indicator 3: Number and type of media reports (print and electronic) that reference the pilot

The aim of this indicator is to establish the extent to which the profile of evidence-based decision making processes is being increased through media exposure.

The Chinese information universe, of government websites, media outlets and other online platforms is vast. A general Google search of key terms returned very many hundreds of results. Exploring these in detail was deemed beyond the scope of this assignment. In agreement with NICE, it was determined that the principal focus of Indicator 3 was to be mentions of the NICE/CNHDRC pilot, and NICE, on government websites, rather than media platforms. In order to increase focus of a search for reporting on NICE's activities in China, and the propagation of information related to the pilot, a stratified search approach was used, consisting in:

1. Examination of websites of government, bureaus of health and news websites local to the pilot locations (Qianjiang and Huangdao).
2. Examination of websites at the next higher level of government (Chongqing and Qingdao).
3. Examination of central government websites: CNHDRC; NHFPC and central government.
4. Examination of several high profile Chinese media outlets (China Daily, People's Daily, Health News, a Chinese news portal linked to the NHFPC), and a targeted Google News search.
5. Analysis also made use of documents supplied by NICE/CNHDRC.
6. For the purposes of this assessment, only Huangdao/Qingdao and Qianjiang/Chongqing were considered.
7. Websites were searched using keywords designed to elicit mentions of NICE and/or the pilot.[13] Unless otherwise specified, searches were in Chinese. One exception is 'NICE' which occurs relatively frequently as an English name in Chinese texts, either alongside or in replacement for Chinese translations of this.

It is not feasible to accurately enumerate the number of reports mentioning NICE / the pilot, principally due to the very large number of these (if all mentions, anywhere, are to be taken into account), and the imprecision of any search such as this in China's vast and chaotic data universe. This stratified approach attempts to overcome this. The logic of this is that local reporting, either on websites of local government or in local media (which is closely linked to local government if not, in many cases, a platform for local government) is an expected channel for local governments to propagate information about their pilots. Other reporting of these pilots, at superior levels of government, should indicate a degree of awareness at higher levels of this pilot. Analysis below is based on this stratified search.

Findings on the indicator

The following sections present findings for sub-national searches, national media, and ministry/central government-level institutions, drawing out main themes, with specific attention to the following: Do reports mention NICE/CNHDRC? Do they mention clinical pathways? do they mention payment reform? Do they mention evidence-based decision making? A final section draws out main points.

[13] Keywords used were:"'nice"; "英国国家卫生与临床技术优化研究院" (translation of NICE in Chinese); "英国国家卫生与临床优化研究所" (translation of NICE in Chinese); "卫生发展研究中心" (CNHDRC in Chinese); "临床路径" (clinical pathways in Chinese); "黄岛" (Huangdao); "黔江" (Qianjiang), etc. These were used singly and in combination as relevant.

Local government and media websites report favourably on the pilot and mention NICE's role.

Huangdao/Qingdao

Searches of Huangdao local government websites did not return hits relevant to the pilot or referencing NICE; however, searches of relevant Qingdao websites turned up several articles relating to the pilot. The five articles found through the Qingdao Health and Family Planning Commission website had the following features:

- Two articles discuss launch of the pilot or related meetings.
- One article presents a brief discussion of Huangdao's clinical pathways work and associated policy in the context of Qingdao's efforts to build a health system with which local residents are satisfied.
- Another discusses a site visit to Huangdao by leadership of the Qingdao Health and Family Planning Commission to assess Huangdao's work on clinical pathways.
- One article, presumably aimed mainly at users of the health service, gives an explanation of clinical pathways, how they link to health insurance, and the savings health service users will derive because of these.
- Articles are positive towards clinical pathways, link these to payment reforms, and in some cases specifically discuss these as a form of evidence-based decision making tool. They name NICE and CNHDRC and describe their roles in the pilot.

Qingdao's government website turned up no hits for 'NICE' or 'CNHDRC', but did return some hits for 'clinical pathways'. None of these contained significant detail on the pilot or on Huangdao, however. In 2013, Qingdao Daily carried a relatively long (approximately 1,000 word) article on the Huangdao pilot. The article discusses this Huangdao as a NICE/CNHDRC pilot, and states main foci of this (stroke, COPD, TIA, etc). The article presents the rationale of the project as controlling costs, ensuring quality treatment, ensuring good use of medical resources, etc, as well as the importance of external experts in defining the CPs. It specifically states that this is an evidence-based (*xunzheng*) approach to healthcare provision. It discusses clinical pathways and linking of these to health insurance, as well as reimbursement rates for patients enrolled in clinical pathways. The tone of the article is positive, and presents a synthesis of operation of the pilot and benefits that are expected from it.

Qianjiang/Chongqing

Searches of Qianjiang government and media websites turned up four articles discussing the pilot, dated 2014 to 2015. Three were from a local news website, and one from local government. All articles hook reporting onto site visits or meetings related to the pilots, including visits from Indian and Vietnamese health policy makers.

Main features of reporting:

- All articles clearly state that Qianjiang is a pilot including both clinical pathways and payment reform. All articles are explanatory in nature and positive in tone, framing the pilot as good for patients and clinicians, and an important part of controlling costs.
- Articles mention the involvement of CNHDRC and NICE, and refer to the 'joint China-UK' project being run in Qianjiang.
- While articles do not specifically mention the fact that the pilot adopts an evidence-based approach to treatment, they frame the pilot as important in generating evidence to support reform / policy making.
- The Qianjiang pilot is discussed as the first in Chongqing and as having been rolled out to other places within the municipality. Reactions of Indian and Vietnamese health policy makers to the pilot are described as positive.

Searches of Chongqing Municipal Health and Family Planning Commission website returned surprisingly few references to the pilot. No articles were found through a keyword search of the website mentioning 'NICE', or 'CNHDRC'. There were several hits for 'Qianjiang' and clinical pathways, though most relate to 2011/2012. These

state that Qianjiang is developing an integrated clinical pathways / payment reform pilot aiming to transform the way in which public hospitals are paid, reduce cost growth, and ensure provision of quality services, etc. A 2014 document mentions Qianjiang's experience with implementation of clinical pathways in the context of work the District is doing on standardising outpatient drug use. No mention is made of evidence-based policy in relation to Qianjiang's development of clinical pathways.

National media have reported on the pilot, but coverage of NICE appears to be more related to role in the UK health system.

A search on Google News was carried out, for 'NICE' and 'clinical pathways', returning one relevant result. This was an article from Sohu.com, a major Chinese news portal, dated 2013. The article discusses a range of health reforms in Huangdao, and the article has a short (three-paragraph) introduction of clinical pathways in this context. This states that this pilot is supported by NICE/CNHDRC, within funding from DFID, and broad aims of the project. The full name of the project in Chinese is given, so the term 'evidence-based' is used, but this is not discussed or elaborated on.

A keyword search was carried out of several prominent Chinese news platforms. People's Daily (Chinese and English), as well as China Daily (an English language publication) returned no hits for 'NICE' in conjunction with 'clinical pathways'. However, a 2014 article from China Daily supplied by CNHDRC mentions NICE's work in China in the context of foreign companies' engagement in China's healthcare reforms, and increasing importance of the Chinese market.

A search of the Health News (*Jiankang Bao*) website, the website of a health newspaper linked to the NHFPC, turned up three articles, dated between 2013 and 2014. Of these, two gave only brief mention of NICE, either in relation to drug certification in the context of public hospital reform, or use of comparative effectiveness research in an article on big data. A longer article on the expansion of clinical pathways in China, following initial piloting of these since 2010 under the MOH policy introduces NICE at greater length, including its history, and main roles. The article cites interviews with NI staff, who discuss the role of NICE in the UK health system in increasing value for money and ensuring equitable use of health resources. The article does not mention the NICE/CNHDRC pilot or evidence-based practice in the context of NICE's work. None of these article relates specifically to NI, but rather to the role of NICE in the UK health system.

A broader keyword search for 'NICE' in the Health News website turned up seven relevant articles, between 2007 and 2014. These predominantly report on NICE's function in the UK health system and/or report NICE recommendations on changes to healthcare practice, including regarding child safety (2010), GP contracts (2013), heart disease risk and use of statins (2014), and radiotherapy for breast cancer treatment (2014). One article cites the role of NICE in applying cost effectiveness analyses to drug approval in the UK, and one (a MOH policy briefing) mentions evidence-based policy. No article reports on NICE's China work or the NICE/CNHDRC pilot.

Mentions on ministry and central government platforms are limited, with the exception of CNHDRC.

A search of the CNHDRC website returned ten relevant articles, between 2010 and 2015. The majority are short news items, discussing launch of the NICE/CNHDRC pilot, meetings and site visits in China including NICE, or study tours to the UK organised by CNHDRC. One article reports a meeting between Ma Xiaowei, Deputy Director General of the NHFPC, and David Haslam in 2013 and both sides' reiteration of desire to cooperate. Keyword searches of the NHFPC website returned few relevant hits. Aside from an announcement of the meeting between Ma Xiaowei and David Haslam, the most significant result was inclusion of NICE in a 2011 MOH policy brief on international approaches to health technology assessment. Description of NICE's role is short and functional, and is included alongside other approaches worldwide. In addition to the above, the Chongqing HFPC website turned

up a 2011 briefing document from the State Council Health Reform Small Group on the Health XI project which cites NICE's support in the development of clinical pathways. This obviously refers to the first stage of NICE's collaboration in China. As elsewhere in this report, the NHFPC have expressed strong support for NICE's work in China through a letter from Liang Wannian and that this is informing China's roll out of clinical pathways work to 1,000 counties nationally.

The limited search strategy applied does not demonstrate a link between NICE and evidence-based decision making, but a broader approach might produce different results.

Following discussion with NI, online searches carried out for Indicator 3 focused on NICE/NI as much as the NICE/CNHDRC pilot itself. It did not focus specifically on keyword searches related to evidence-based decision making. This search was, of necessity, limited in scope and focused predominantly on government information platforms, supplemented with some media searches. This indicated a reasonable amount of reporting of NICE and of the pilot, though most reporting of NICE that was uncovered in national media/government websites was, with the exception of CNHDRC, reporting of NICE's role and importance in the UK, not the China pilot.

There were few incidences of terms relating to evidence-based decision making in reports uncovered through this exercise. On one level, this is not surprising: searches did not employ this as a keyword. However, it is interesting that most mentions of NICE, or of the NICE/CNHDRC pilot uncovered through this search process are not highly correlated with terms relating to evidence-based decision making. This result should be treated with caution: a simple Google search for 'NICE' and 'evidence-based' (in Chinese) returned more than 2,000 hits. Evidence-based policy, decision making, or medicine may be linked with NICE in the larger Chinese media/discourse universe, but showing this would require more work and a different approach.

Findings related to the indicator

A decision was taken in collaboration with NI to focus principally on government sources for assessment of Indicator 3 in the Chinese case. Sources used were mainly government websites, and searches were stratified to show local, provincial and national mentions. This was supplemented with some local media, which often plays a role in reporting on government policy changes, etc, and searches of a few key national media platforms. Only two jurisdictions (Huangdao/Qingdao and Qianjiang/Chongqing) were covered. This is a limited strategy, given both the number of counties/provinces in China, and the number of other information platforms, whether government, media, or other, including dedicated health websites, websites with some kind of commercial remit that publish or re-transmit health-related media content, blogs or other grey literature written by individuals active in the health sphere, including clinicians, health policy analysts, etc.

Parallel to this, there has been much academic publishing on clinical pathways and payment reform in China. This is available through specialist databases such as China National Knowledge Infrastructure. Given that this is specialist reporting/analysis for a specialist audience, it could be a valuable source of information on the impact of NICE's work in China. Saying this, as Liang Wannian's letter in support of NICE's work shows, there is already great knowledge of, and support for, this work.

Implications of data collection process

As above, this analysis has shown a degree of reporting of NICE and the NICE/CNHDRC pilot in China through a targeted, stratified, search. This has been shown to be a limited strategy. A wider and more comprehensive approach would likely produce fuller, and quite possibly different, results. As above, discussions with NI refined the approach to this indicator, and searches focused to a large extent on profiling of NICE and the pilot, rather than evidence-based decision making *per se*. Capturing this more directly would require substantially more resources and a greater time commitment.

This analysis points to a degree of reporting and discussion of NICE, independent of this pilot. From available evidence, this reporting seems to concern, and indicate an interest in, the role of NICE in the UK health system. The extent to which NICE is developing a profile, and interest, in China based on increased understanding of its UK role may be of interest and may merit further attention.

Following discussions with NI and modification of focus of this indicator, the indicator ("Number and type of media reports (print and electronic) that reference the pilot"), and the strapline ("The aim of this indicator is to establish the extent to which the profile of evidence-based decision making processes is being increased through media exposure") should be harmonised. At present, these risk being open to different interpretations.

Indicator 4: Extent of adoption of similar processes for QS/CP development in other locations

Findings on the indicator

This indicator aims to capture the extent to which evidence-informed priority setting is taken up more widely following the initial pilot – i.e. the use of adapted NICE methodology to develop quality standards or clinical pathways in other geographical areas. In some cases, this may be in the form of replication of the entire methodology or development process, but more commonly, it may be adoption of specific elements of the approach. In addition to identifying instances where the CP development process is already being adopted, the indicator aims to capture the early stages of wider take-up – for example, interest and engagement from stakeholders in other locations, in order to understand how scale-up happens over the longer term.

In common with other indicators in this report, data for Qianjiang are more complete than data for Huangdao. In neither Huangdao nor Qianjiang are specific records kept of the degree to which other jurisdictions are implementing clinical pathways based on 'their' models. This limits the possibility of charting scale up.

Following discussion between the evaluation team and NI, some modifications have been made to this section, principally the removal of a figure used to chart adoption of similar reforms (CPs+) in both pilot sites and other locations. Scale up of the pilot is being driven by policy change in key jurisdictions (see Indicator 6). Given this, originally anticipated phases of scale up ('interest', 'early engagement', 'scoping', 'initiation of development, 'product finalisation, 'product implementation') are a poor fit with processes of scale up visible in the two pilot sites and elsewhere. Also, given the need for policy approval for linking clinical pathways and payment reforms, scale up processes in pilot counties and in non-pilot counties are qualitatively different. The following discussion is based on the framework originally set out, and based on scale up processes in focal locations (pilot counties) and non-focal locations (other jurisdictions), for both existing and new conditions (i.e. development of existing CPs, and new CPs), but is presented as a narrative description of scale up, not specifically structured by phases.

In Qianjiang and Huangdao, existing clinical pathways have been further developed, and new clinical pathways have been developed.

This section covers discussion of development of new CPs within focal locations (existing pilot sites) as well as further development of existing CPs within focal locations. It is important to realise that China issued national policy on the development of clinical pathways prior to the NICE/CNHDRC pilot, and that both Huangdao and Qianjiang were implementing clinical pathways before the pilot started. This substantially muddies the waters and makes it hard to understand what should be considered scale up of project activities and what should be considered part of a larger background trend.

Further development of existing clinical pathways

Qianjiang is engaged in further development of existing clinical pathways developed through the pilot. The main example cited locally is stroke. Qianjiang have been finding that in some cases the clinical pathways they are currently implementing are insufficiently detailed, and that costs of actual procedures delivered under these vary very widely. E.g. Qianjiang are working on adapting/refining the stroke clinical pathway: their current payment level for this is set at 12k Rmb, but some cases are coming in at 6-7k, some at 20-30k. Overall, they believe this shows that there are too many complications in stroke care and that they need to further differentiate or refine the CP. The process described is one of creating 'branches' to allow for more precise guidance/costing.

Qianjiang is actively seeking to broaden the scope of clinical pathways work, and has started to develop clinical pathways that incorporate preventive and rehabilitation (*kangfu*) services, under a three stage model of

"prevention, treatment and recuperation" (*yu, zhi, kang*), linking QCH with healthcare providers at lower administrative levels, mainly township health centres (THCs).[14] THCs are of lower capacity and have fewer facilities, but benefit from lower costs and mandated higher health insurance reimbursement rates. Overall, Qianjiang are aiming for integration across levels of the local health system and definition of appropriate roles across levels. Examples of work ongoing include setting up of a Picture Archiving and Communications System (PACS), allowing clinicians at QCH to view ECGs from the township health centres and provide remote diagnoses. This work fits with an increasing policy stress on differentiation of treatment across levels of the local health system (*fen ji zhiliao*), and was framed in these terms. This is firmly in line with the intended development of the pilot.[15]

Development of new clinical pathways

Qianjiang are currently implementing 81 clinical pathways, down from almost 100.[16] Huangdao are also implementing many more than those developed with support from this project, though the exact number is unclear (though when Huangdao started implementing clinical pathways in 2009 these covered 55 conditions). In most cases, clinical pathways other than those developed with specific support of the project have been developed locally, by the hospitals/departments in question.

It is unclear exactly how these have been developed and evidence is slightly muddled. In Qianjiang, interviewees describe a process in which departments within the hospital decide conditions they think are suitable for development of new clinical pathways convene departmental meetings to discuss these, and refer their draft clinical pathways to the clinical pathways department of the hospital for approval. Once approved, these are integrated into management and health insurance payment packages. At least in Qianjiang, clinicians and departmental heads have received training on this. The main criteria described by interviewees for selection of conditions for development of new clinical pathways are that these be common conditions allowing relatively standardised treatment.[17]

It is not clear the extent to which locally-developed clinical pathways can be considered evidence-based: in all cases, people involved said they drew on national guidance documents, integrating these with their 'local conditions'. In most cases, though, they do not appear to have had external support in developing these, and it's unclear the extent to which these can be considered evidence-based in the sense in which this project understands this. In principle, it would be possible to review these, with suitable technical support.

In Huangdao, there is anecdotal evidence that there is demand for clinical pathways from clinicians in departments in which these are not currently being implemented. This should be interpreted carefully, however: according to discussions with hospital management and CNHDRC, this enthusiasm relates to perception that this will benefit departmental bottom lines and, hence, salaries.

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[14] This is in line with anticipated development of the project (CNHDRC 2014; Huangdao People's Hospital 2014).

[15] See project note drafted by Lewis Husain, December 2012 (Husain 2012).

[16] The total number of clinical pathways has been reduced as a number were felt to be unnecessary, following trialling. This may provide evidence of rational decision making around need for clinical pathways, or it may show trimming following excessively zealous roll out.

[17] There is no direct documentation of the way this process functions in Huangdao; however, this is likely to be different from Qianjiang. Huangdao People's Hospital currently only runs clinical pathways in a handful of departments – these have not been generalized across the hospital, as in Qianjiang.

There is substantial dialogue between pilot counties and non-focal locations, but current evidence for scale up in non-focal locations is limited.

This section discusses scale up in locations other than the project pilot sites.

Vectors for scale up of pilot work clearly exist. In Huangdao, for example, a number of counties/districts have been to study what they're doing, but Huangdao do not know about state of implementation in those places. The degree of dialogue between Qianjiang and other counties is very substantial, as fits a county that has been central to China's health reforms for more than fifteen years. The main forms of dialogue that can be identified are as follows:

First, Qianjiang have received visits from other counties, including local counties also implementing clinical pathways, following the recent Chongqing policy change (see Indicator 6). Second, Qianjiang sent a delegation to Anhui province (where this reform is being pushed by the former head of CNHDRC, now in the provincial Bureau of Health) to showcase what they're doing.[18] Overall, the amount of dialogue Qianjiang have with other places is huge.[19] In other words, vectors for scale up clearly exist, but in aggregate there is no specific follow up on such visits and dialogue and it is not possible to inform on the state of implementation elsewhere.

Two other instances of scale up deserve mention. According to CNHDRC, there is a degree of local-local diffusion / scale up in Henan, linked to the pilot in Wen County. Also, the former head of the CNHDRC, Yu Dezhi, has moved to the provincial Bureau of Health in Anhui Province and has been promoting use of clinical pathways there. This is a case of scale up through a specific leadership channel. At present, no information is available on either the mode of development of clinical pathways in these places or the degree to which these are, or are not, evidence based, or the scope of these – what conditions are covered.

Findings related to the indicator

The link between clinical pathways and payment reforms means that there are differences in processes of adoption of 'similar processes' within focal locations (i.e. pilot counties) and new locations (other counties).

1. Development of CPs in focal locations: Further development of clinical pathways in focal (i.e. pilot) locations is fundamentally within the decision making authority of local stakeholders – main decisions regarding implementation of clinical pathways and, more importantly, linking of these to provider payment reform and reform of hospital management systems (see Indicator 7, below) have already been made. There is a low barrier to expansion of scope of clinical pathways and/or development of new ones.
2. Development of CPs new locations: Development in non-focal locations is not within the decision making authority of local stakeholders due to the need for policy approval for payment reforms, has not been agreed in advance, and in most cases will require enabling policy change at the superior level of government to allow it to occur. The importance of provider payment reform in this means that government authorization is needed and that scale up is proving largely policy-driven.
3. In examining scale up, Qianjiang / Chongqing is a special case. Following release of municipality-wide policy in 2014 (see Indicator 6), one should expect that whatever local-local scale up there might have been in Chongqing to have been overtaken by municipal policy-driven roll out.

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[18] Yu Dezhi, formerly with CNHDRC, is now in the Bureau of Health of Anhui Province and has been promoting CPs there. Qianjiang sent a delegation to Anhui in October 2014 to discuss their pilot. This was organised by the CNHDRC. Representatives of other pilot counties also went.

[19] Another form of possible scale up In evidence is that Qianjiang received a delegation from Vietnam to look at their reforms. it is not known what results of this were.

4. The NHFPC has now committed to developing integrated reforms based on the pilots in one thousand counties nationwide (see Indicator 6). This is likely to provide fertile ground for counties to advance reforms linking CPs with payment and management reforms, and for learning from the concrete experience developed through the pilots.

Implications of data collection process

The process of development of CPs within focal locations is unclear.

To a large extent, it appears that new clinical pathways have been developed in focal locations without external support and, as above, clinicians and managers appear to rely on national guidelines/protocols for development of new clinical pathways, localizing these in the process. The level of management oversight of this process in Qianjiang appears to be strong. It is not clear at present how this is managed in Huangdao. It is unclear, at present, the degree to which this process can be considered evidence-based, given absence of external technical support. This deserves further investigation

Pilot sites are limited in their ability to inform on development of reforms in non-focal locations.

Overall, in response to questions on this, it appears that pilot counties do not keep records of what happens following study visits from other counties – whether these counties use things they've learnt during the visit, the degree to which these prove useful , etc. While this falls outside the scope of this assessment, a prominent example is the study visit to Qianjiang from the Vietnamese Ministry of Health organised in 2014. QCH believe this to have been useful to the visiting delegation, but do not know what use was made of what the delegation learnt following the visit. There appears to have been no follow up from the Vietnamese side, and Qianjiang have no reason to proactively follow up with the Vietnamese delegation on what they derived from the visit.

Recommended refinements to indicator and protocol

1. Target newly-developed clinical pathways for assessment against criteria which could show degree to which these are either evidence-based, as understood by this project (i.e. a process-based indicator), or base evaluation on existing methods for quality of clinical pathways (e.g. Hu et al. 2013).
2. Counties are limited in their ability to inform on scale up in other places. If specific follow up is required, this could be negotiated through CNHDRC/pilot counties. This would require keeping of specific records and follow up with relevant contact people. This is conceivable, but may be hard to implement.
4. Consider using a case study approach to development of clinical pathways in non-focal locations. Given the complexity of local dynamics and the ways in which scale up is mediated by city/provincial level policy, the best approach might be a small number of case studies. Either Chongqing or Qingdao, or both, could be interesting and important case studies showing the importance of local (county/district) pilot reforms in feeding into, and providing evidence for, larger-scale (municipal, city) reform processes. In Qingdao, access to City-level BOH and health insurance agencies appears to be relatively straightforward. Henan / Wen County might provide an interesting comparator, possibly showing a more local-local scale up. Case studies could build on Qingdao/Chongqing data already available, and incorporate another 1-2 county visits (purposively selected). This could be discussed with CNHDRC.
5. Policy-driven roll out in Chongqing and central backing for roll out of an integrated CPs+ reform provide fertile ground for other counties to learn from the pilots supported by NICE/CNHDRC. Although policy backing will provide the impetus for many counties to carry out this work, technical capacity and details of implementation will have to be built in many counties. This is likely to draw on exemplars already in existence. For example, other counties in Chongqing are sending study tours to Qianjiang to observe local practice. The focus of this is

likely to be practical matters of implementation, rather than understanding what the reform is about. It would be valuable to chart this if resources are available and a reasonable model for doing this can be developed. Effectively, this is a form of local-local technical assistance drawing on resources (knowledge, understanding, techniques) developed through the pilot. Equally, with a central commitment to roll out of practices developed through the pilot to one thousand counties nationwide (including, seemingly, CNHDRC training in 500 counties), there is potential for examining how learning from the pilots is disseminated, built on, and adapted in this process. Such case studies could be very valuable in showing how practical learning developed through the pilots has been used elsewhere.

Indicator 5: Number and depth of new partnerships developed by NICE International

The rationale for collecting this indicator is for NICE International to be able to systematically monitor the work that it is doing – i.e. establishing the extent to which its various engagements develop into longer term partnerships. Health diplomacy forms a substantive component of NICE International's activities, and is a key driver of progress towards the longer term outcomes and impacts articulated in the Theory of Change. Given that forming and sustaining different partnerships is an integral part of the process of health diplomacy it is important to be able to track their development. Identifying which partnerships develop may allow NI to learn formative lessons about the factors that promote successful partnership development, in order to apply these in future. It will also allow NICE International to set targets on how they want to see certain partnerships develop over time.

Evidence for this indicator was drawn from two sources: interviews with informants in CNHDRC and in project counties, and documentation supplied by NICE International. The analysis and classification of NI partnerships in China given here is provisional and follow on discussions with NI are anticipated to fill in details and corroborate analysis. The scale according to which partnerships were classified is included as annex E to this report. This report presents a single completion of the scale, the key utility of this indicator is in tracking development of partnerships over time.

Findings on the indicator

Figure 2: Overview of NICE International's partnerships in China

Nascent	Emerging	Established	Mature
• National and provincial government actors	• Qingdao	• National Health and Family Planning Commission • National Development and Reform Commission	• CNHDRC • Renmin University

	Nascent	Emerging	Established	Mature
Sub-national	?	1	0	0
National	0	0	1	2

Analysis has identified four key partnerships in China, at different scales and at different levels of maturity.

Two partnerships, namely those with CNHDRC and with Renmin University, are classified as mature. One partnership, with Qingdao Bureau of Health, is classified as emerging. There are signs of nascent relations with a number of Chinese government departments, at both the central and provincial levels, though these should be interpreted with caution. Project counties involved in the clinical pathways pilot are not included as direct partnerships with NI, but are considered part of the NICE/CNHDRC partnership.

CNHDRC emerges as NICE International's core partner in China and the relationship is clearly a source of strength, while NI's long-standing partnership with Renmin University continues to flourish.

NICE International has been involved in rural health reforms in China since 2009 and its main partner is the CNHDRC. CNHDRC (China National Health Development Research Centre) is a core part of the health system and a key policy research institute and think tank to the Chinese National Health and Family Planning Commission (formerly Ministry of Health). As such, the CNHDRC is very well positioned as a partner through its connections to

sub-national governments, its strength in brokering and managing pilots, and in its position within the Chinese policy system and close link to the Commission.

The NICE-CNHDRC partnership is of long standing: the current project builds on NICE International's collaboration with CNHDRC on Phase 1 of the clinical pathways pilot, run since 2009. Aside from the core activities of managing the pilot, there is evidence of other forms of interaction between NICE and CNHDRC, including at least the following: multiple site visits in China and multiple workshops co-convened by CNHDRC and NI; NICE has hosted multiple visits to the UK by CNHDRC since 2010, including delegations involving senior Chinese health ministry representatives. In addition, there have been joint applications for funding, e.g. from DFID for continued support for implementation of clinical pathways, dissemination of findings and capacity building. Very encouragingly, March 2014 saw two members of staff from CNHDRC carry out a three week placement at NICE in the UK, the aim of which was to provide a means to increase their learning about NICE through direct interaction and the potential usefulness of NICE methods in China.

The partnership with CNHDRC is invaluable to the success of NICE International's work in China, bringing invaluable local knowledge and experience. The partnership is clearly perceived as mature by NICE International, for whom it is routine. Communication around project management is second nature, and arising issues can be dealt with swiftly through direct phone communication. It is clear that there is a high degree of complementarity in the relationship between NICE and CNHDRC and that this has been key to the success of the clinical pathways pilot (see conclusion).

NICE International has a long-standing partnership with Renmin University, one of China's top academic institutions. To date, NICE International has held five bilateral conferences on issues of common concern, notably hospital reform and performance, care quality and improvement, integrated care including primary care. Renmin University sent a delegation to the UK in 2008, and conferences have been held annually since 2010, attracting a wide range of participants from academia, central and provincial policy makers working in health and social security, as well as healthcare professionals, hospital managers and administrators. Following the 2014 conference, on care quality, hospital reform and the role of integrated care, including primary care, NI intend to deepen partnership in the coming year.

NICE has established partnerships with central government ministries, notably the NHFPC.

NICE has a long history of high level dialogue with government actors in China. The most obvious of these is the relationship with the National Health and Family Planning Commission (formerly Ministry of Health), with which there has been ongoing contact since 2009, when NICE International met with CNHDRC and then Health Minister Chen Zhu. Since then, NICE has hosted multiple delegations from the Chinese health ministry. In 2014, NICE International had meetings with the Director General and colleagues in the NHFPC division of Planning and Information, at which the all participants reiterated their commitment to working together and highlighted priorities for collaboration with the goal of achieving sustainable universal coverage. In addition, NICE had a high level meeting with the Vice Minister of health, Ma Xiaowei, at which Ma called for continued collaboration with NICE International.

NICE has an established partnership with the National Development and Reform Commission, with which they have partnered on several projects funded by the UK Foreign and Commonwealth Office, as well as a number of visits and dialogue over time.

Other partnerships are nascent or emerging. Development of these should be a source of strength for future collaboration.

NICE also has a nascent relationship with other government actors, including the Development Research Commission, a think tank to China's State Council, and has had exchanges with multiple government entities over

time, including the Ministry of Human Resources and Social Security and, at provincial level, Anhui, Xinjiang and Zhejiang provinces.

One emerging partnership was identified between NICE International and a Chinese institution. In February 2014, having worked with Qingdao for over a year, NICE International signed a Memorandum of Understanding with the head of the Qingdao Health Bureau, the focus of which is enhancing collaboration and mutual learning, especially as regards NICE's approach to technology assessment and quality improvement in NCDs, and supporting Qingdao with its healthcare reforms. This builds on existing collaboration under the NICE/CNHDRC clinical pathways pilot. The partnership was launched with attendance from multiple government departments on the Chinese side (including health and social security) and funding for Chinese engagement is provided by the Qingdao. This is the first such MOU signed by NICE International with a major overseas city.

Findings related to the indicator

NICE International appear to be leveraging relationships with both UK and Chinese stakeholders. One example of this is the signing of a cooperation agreement between health authorities in Qingdao and NHS London. The signing was followed by visits to NICE and other NHS organisations (the Riverside Medical Centre at Vauxhall, the Waldron GP Walk in Centre in Lewisham, the Hurley Clinic in Kennington and St. Thomas's Hospital) (NICE International 2014). This appears to be a positive in the overall development of links with Chinese health agencies.

Implications of data collection process

Follow up discussions with NICE are suggested to fill in details and corroborate analysis. No other implications for the data collection process at the time of writing.

Indicator 6: Publication of legislation/regulatory circular enforcing the uptake of evidence-informed technology and service adoption (or disinvestment) decisions, including evidence-informed quality improvement mechanisms

This indicator is measuring longer term outcomes, aiming to capture the extent to which the institutional context is conducive to, and actively promotes through legislation, the implementation of evidence-informed priority setting in health and the extent to which NICE International and its partners has helped create this context.

In the case of Huangdao/Qingdao, given the absence of policy promoting scale up of the pilot city-wide at the time of the site visits, data for this indicator were collected through interviews with representatives of the Bureaus of Health in both Huangdao and Qingdao (Huangdao's parent city), and representatives of local Health Insurance Bureaus. Policy relevant to the Qingdao backing of clinical pathways piloting were also reviewed. In the case of Qingdao/Chongqing, given the existence of municipality-wide policy since 2014, analysis was based on this policy. No provincial-level interviews were carried out, though the policy was discussed with stakeholders in Qianjiang. CNHDRC were helpful in informing on status of policy uptake in both Huangdao/Qingdao and Qianjiang/Chongqing.

Findings on the indicator

Both Qingdao and Chongqing have issued policies promoting experience derived from the pilots, but it is not possible to say the extent to which this should be considered evidence-informed priority setting.

Both Qingdao and Chongqing have issued policies promoting models closely linked to the pilots. Evidence from policy documents available at the time of writing, however, is insufficient to form a decision as to whether the policies will result in implementation of evidence-informed priority setting in counties where they are implemented. Main concerns are around the extent to which there is technical support to counties to allow evidence-based decision making.

Qingdao government is positive on the usefulness of the Huangdao pilot and has given a green light to the pilot. The city government has put in place a pilot on clinical pathways based on experience in Huangdao.

Qingdao is experiencing rising healthcare costs, and the ability of the city to increase funds for health insurance is limited, putting pressure on funds and necessitating imminent action to control costs: based on Qingdao City BOH calculations, rising costs will hit the ceiling of available funds in 2015. The looming funding crisis presents a window of opportunity for this reform. Many hospitals in Qingdao are implementing clinical pathways, as there is national policy on this, but results are believed not to be as effective as the Huangdao pilot.[20] Interviews show that Qingdao City Health and Family Planning Commission view the Huangdao pilot in a positive way and believe that this is beneficial and provide a basis for City-level policy. According to Qingdao City BOH, this is the best approach to provider payment they have tried to date. At the time of the site visit, there was no Qingdao City policy promoting this reform, though there was a joint Qingdao-Huangdao policy authorizing Huangdao to carry out this pilot (referred to by CNHDRC as a 'green light' for the pilot).[21] The need for the policy authorization relates

[20] According to the head of Qingdao Health and Family Planning Commission, only approx. 20% of people 'complete' clinical pathways in other hospitals running these, compared to more than 80% in Huangdao.

[21] This is a joint policy issued by Qingdao City Health Reform Leadership Group, Qingdao City Development Reform Commission, Huangdao District Bureau of Finance, Huangdao District Bureau of Labour and Social Security, Huangdao District Health Bureau of Health.

to the link between clinical pathways and payment reform in the Chinese pilot, and the fact that change in payment methods requires authorization at the city level in Qingdao at present.[22] Any scale up of the policy at City level will be scale up of a policy linking CPs, payment reform and other elements. Shortly after the site visit (end of November 2014), Qingdao launched a pilot on clinical pathways. From available documentation (Qingdao Health and Family Planning Commission et al. 2014), the pilot builds on the existing Huangdao experience, and institutes a range of coordination and management structures at city level. Scale up from Huangdao to other jurisdictions is due to take place from the end of 2016, following interim assessment of effectiveness. The pilot is intended to provide evidence for city policy development.

Chongqing has released policy promoting payment reform and clinical pathways at the municipal level.

Chongqing have recently issued a policy promoting payment reform and clinical pathways at the municipal (provincial) level.[23] This has been interpreted by CNHDRC and Qianjiang as validation and scale up of the Qianjiang pilot. Note that this follows on from a period during which Chongqing centralised control over provider payment methods to the municipal level, meaning that Qianjiang's reform process stalled. While Qianjiang carried on implementing clinical pathways, effectiveness against their chosen indicators (average length of stay, average per person/time inpatient spend, and average drug spend) declined. From Qianjiang's point of view, the new policy reinstates the link between clinical pathways and payment reform.

The Chongqing policy promotes 'condition-based' (*dan bingzhong*) payment for 50 conditions municipality-wide.[24] The Chongqing policy is a composite condition-based payment reform, which makes use of clinical pathways to help specify payment packages for use by health insurance. Evidence-based decision making is not specifically raised. Clinical pathways, as referred to in the document, appear to be based on national clinical pathway guidelines. It is not clear degree to which these are evidence-based and/or can be modified locally. It is also unclear the degree to which clinical pathways to be used are evidence-based, or the degree to which support is available in setting these. Given that evidence points to this being an ongoing *process*, this would seem to be an important question. Saying this, the policy should enforce take up of clinical pathways across the whole municipality, link these with payment reform, and could have a large demonstration effect.[25]

[22] Note that Qingdao will soon be merging the three health insurance schemes operated in the city. When this takes place, this would, in theory, remove the authority to link clinical pathways to payment reform, as happened in Chongqing. On the day of interview of representatives of the Bureau of Health and Health Insurance Agencies, Huangdao had apparently secured an unofficial green light that this merger would not affect the pilot, but how this develops remains an open question.

[23] Chongqing Municipal Price Bureau, Chongqing Municipal Health and Family Planning Commission and Chongqing Municipal Health Insurance Bureau (2014), Notice on the development of case-based payment reform, July 7th, Chongqing Municipal Price Bureau Document No. 213 of 2014. URL: http://www.cqpn.gov.cn/njgzc/53361.htm

[24] Chongqing policy appears to have drawn on two local reform models: Qianjiang and Liangping County (also Chongqing Municipality). Liangping County appears to have been also involved in work with CNHDRC.

[25] Note that fees for specific conditions are set at the municipal level. Discussions in Qianjiang point to the importance of setting fees locally to reflect actual local costs. Costs will vary depending on level of development of areas, etc. This appears to be a concern: discussions with the surgery department in Qianjiang, for example, revealed tensions over cost setting: according to the department director, the Chongqing policy sets an unreasonably low rate for appendicitis, and this rules out advanced methods. This is believed to be bad for both doctors, who believe their behaviour to be unreasonably constrained, and patients, who would rather have a modern, non-invasive technique. The policy doesn't make any reference to development of supporting systems, e.g. computer systems. Funding, etc, available for these could influence uptake and success.

Anhui Province is providing policy backing for piloting of clinical pathways linked to provider payment reform.

Following departure of Yu Dezhi from the CNHDRC to Anhui Provincial Health and Family Planning Commission, Anhui has issued policy to promote piloting of clinical pathways in the province.[26] Anhui's policy specifies trialling of clinical pathways, linked to the rural health insurance system (the New Cooperative Medical Scheme) in six counties/cities. Anhui policy requires that counties develop clinical pathways based on national standards, available from the NHFPC, and tailored to their own circumstances. Decisions on conditions for which clinical pathways are to be developed are to be based on incidence and overall costs to the local health service. Counties are requested to submit draft clinical pathways to the provincial Health and Family Planning Commission, who will organise expert review of these, and site visits to relevant hospitals.

Several points deserve to be flagged: Uniform cost structures are given in provincial policy, but counties are given a degree of leeway in adjusting these. Provincial policy gives no detail on actual treatment protocols, and refers counties to central CPs. It is unclear from available documents, how clinical pathways might be tailored locally. Counties were initially asked to develop between 8 and 21 CPs, but have subsequently been encouraged to increase the number of conditions managed through CPs. Timeframes for development of CPs were tight and it not clear whether training or other support was provided during this process.

The policy clearly specifies that clinical pathways are to be considered part of evidence-based decision making. It is not known at present what plans are for scale up from initial pilots, but this policy shows high-level provincial commitment to use of clinical pathways in conjunction with payment reform.

The NHFPC is providing high-level backing for implementation of CPs and the model developed through this pilot.

According to a written statement from the Liang Wannian, Director General of the Department of Healthcare Reform at the NHFPC, the NHFPC has followed progress of the NICE/CNHDRC pilot, and has decided to promote roll out of clinical pathways and integrated payment reforms, based on the NICE/CNHDRC model, in 1000 counties and 100 cities nationwide. The NHFPC will also provide support for CNHDRC to provide capacity building support to 500 counties in using this model. This should provide a very substantial capacity boost to local governments to run this reform. This is very high level impact and support. Ma Xiaowei, Deputy Director General of the NHFPC, has stated that the "approach taken by the project is correct and […] is a very important demonstration project for the Chinese healthcare reform".[27]

Findings related to the indicator

There is evidence of policy-driven scale up in both Qingdao and Chongqing, but it remains unclear whether policy-driven scale up should be considered evidence-based.

Both Qingdao and Chongqing have released policies providing backing, either for scale up of local pilots (Qingdao) or blanket promotion of clinical pathways and payment reform (Chongqing). This is extremely positive development and underlines the important demonstration effect of the pilot. As above, it is not clear the degree

[26] Analysis is based on Anhui provincial policy documents supplied by NICE/CNHDRC. Sources: Anhui Province HFPC (2014). Guanyu Yinfa Anhui Sheng xianji yiyuan linchuang lujing guanli shidian bingzhong an bingzhong fufei zhidao fang'an de tongzhi, September 2014; Anhui Province BOH (2014). Guanyyu zuzhi zhiding Anhui Sheng shoupi xian yiyuan shishixing linchuang lujing de tongzhi, April 2014.

[27] Citation from a letter provided to NICE International by Liang Wannian (February 2015).

to which the Chongqing policy is scale up of evidence-based decision making. On balance, it appears that what is being scaled up is provider payment policy that makes use of clinical pathways as a way to bundle multiple payment items together for health insurance accounting purposes. This is positive. Care should be taken in linking policy change and evidence-based decision making. At the time of writing, there is no way to assess the degree to which processes of development of clinical pathways in counties/hospitals that take up this model of functioning as a result of policy-driven scale up are engaged in evidence-based policy. Reflecting comments made in relation to Indicator 4, without sufficient external support or, as argued above, local-local technical assistance, processes of development of CPs in new locations may not be evidence-based. This is an empirical question and deserves attention.

Implications of data collection process

Policy-driven scale up is in evidence, indicating political support to models being developed through the NICE/CNHDRC pilot. Policies discussed here are likely to have a substantial effect in promoting use of clinical pathways in conjunction with payment (and other) reforms. However, policy-backing for use of such a model should be considered distinct from capacity of counties to implement this. How counties will implement this policy following roll out, and whether they will have the technical resources to do this in an evidence-informed way, remains unclear. Given the importance of evidence-informed or -based development of clinical pathways for both (a) good patient outcomes, and (b) enabling counties to develop locally-suitable institutional arrangements, based on appropriate costs, management systems, etc, how subsequent implementation occurs deserves attention. This could be assessed by the evaluation and linked to how practices and learning from current pilot sites are made use of in further development and scale up of pilots (see Indicator 3).

Recommended refinements to indicator and protocol

On present evidence, the main point to be considered is the degree to which subsequent implementation of experience developed from the pilot is evidence-based. This could be done though focused case studies, as discussed under Indicator 4.

Indicator 7: Development of management systems needed to support implementation of clinical pathways

This indicator was included following pre-site visit discussions with CNHDRC, and responds to the fact that the China pilot was designed as a pilot of a composite reform, including clinical pathways, hospital-level management reforms and reforms to the way in which social health insurance bureaus pay healthcare providers for services, not just a pilot of clinical pathways in China, for which national policy already existed.

Data for this indicator were gathered through interviews with key actors: hospital management and local government agencies (Bureau of Health and Insurance Bureaus) in both Huangdao and Qianjiang. In Huangdao, this was supplemented by interviews with the city-level Bureau of Health and Insurance Bureau.

Findings on the indicator

Stakeholders clearly recognise this as an integrated 'clinical pathways+' reform.

The main finding is how clearly the main actors involved in this pilot describe this not as a standalone pilot of clinical pathways, but as an integrated reform, including a number of elements: clinical pathways, payment reforms, hospital management reforms, and introduction of supporting systems (IT systems and the like). Clinical pathways are one piece of a larger pilot and, by extension, systemic reform. While clinical pathways are an important part, they are not, and cannot be, a standalone reform. There is broad consensus around the need for an integrated solution. This is visible in the ways in which reforms are named locally: Qianjiang have named theirs the "3+1" model, for example.[28] It is also visible in the ways in which pilot sites present the benefits of their reforms: a formal presentation at QCH, for example, gives graphs of the main indicators the hospital use to assess progress of the reform: average length of stay, average per person/time inpatient spend, and average drug spend. While this framing is most obvious at the level of management and government, it is also evident in interviews with clinical staff. The pilot was designed to showcase the possibility of such a coordinated reform, drawing on clinical pathways, and is doing so: locally, the pilot is judged to be highly successful, and there is evidence of policy uptake, as above (Indicator 6).

Several main components should be seen as integral to the integrated ''clinical pathways+' pilot.

Initial negotiations between CNHDRC and the pilot counties were for piloting of a composite reform, and pilots were designed to integrate payment reform, introduction of supporting computer systems, and substantial reform of hospital management systems. The pilot is attempting a complex balancing act of harmonising interests of multiple health system actors; this involves changes across multiple dimensions, none of which could be successful on its own.

1. In addition to clinical pathways, the most obvious component of this pilot is the linking of clinical pathways to health insurance: clinical pathways provide a way to bundle fees into one cost structure (*zhifu bao*) for specific conditions. Changes to this are the remit of the health insurance agency, not the hospital (though the health insurance agency may be constrained by provincial-level policy, as in Chongqing until recently).
2. Reforms to hospital management: given the dominant set of interests in Chinese hospital management, reform of this requires creation of appropriate incentive/bonus systems to persuade clinicians to implement this pilot. In both Huangdao and Qianjiang, there is a clear statement (even among clinicians) that clinical pathways are

[28] 3+1: clinical pathways + combined costing structure + government oversight and policy coordination + hospital management reforms to incentivise staff (Liu 2014).

a way of constraining clinicians' behaviour, and that supporting incentive/bonus systems are needed to get buy in.[29]

3. Computer systems: it is impractical to the point of being impossible to implement clinical pathways in the absence of adequate computer systems to support management and oversight, both at the hospital level and between hospital and health insurance agencies. Much work has been done to ensure adequate IT support.
4. Strong local leadership: need for leadership buy in to ensure success. In both Huangdao and Qianjiang, CNHDRC initially negotiated permission for the pilot with local government, not with any individual functional department. This is important: the Bureau of Health, or the local health insurance agency, for example, does not have the authority to convene other stakeholders. Only local government, at the leadership level, not any technical/functional department, has this authority.
5. Coordinating across different departments/stakeholders: need for buy in from main local stakeholders (BOH, Health Insurance, hospital) to allow reform to work.
6. Something not explicitly put in this category, but which is nonetheless obvious, is the need for a supportive provincial-level policy environment that allows bundling of payment, rather than just fee for service payment (Chongqing/Qianjiang) or at least gives special dispensation for a limited pilot (Qingdao/Huangdao).

The pilot appears to have managed to effectively bundle a number of components together and allow negotiation in pilot counties of win-win solutions that link clinical pathways to payment reform, management changes, and technical support. There should be an incentive among local governments to use such a model if it can be shown to work.

Findings related to the indicator

Main actors involved in the pilot include clinical staff, hospital management, and arms of local government, mainly the local office of the NHFPC (formerly Bureau of Health), which oversees the local health system (including hospitals), and the local Health Insurance Agency, which pays providers for services. There is strong recognition among local stakeholders (both management and clinicians) that the pilot involves a balancing act in ensuring a win-win outcomes for all parties. Much work has been done by the hospitals (particularly obvious in the case of Qianjiang) to develop and properly calibrate incentive systems for clinicians. Overall, it is this balancing act, and the willingness of main stakeholders to buy into this (principally local Health Insurance Agency, Health and Family Planning Commission, and hospital management), that allows this pilot to 'work'. For example, Qianjiang Health Insurance Agency stated that one of the most important things was the way this project has changed the relationship between local agencies, and that it has changed perspectives on health insurance, provision of health services and clinical behaviour. Before, the Health Insurance Agency understood this from their own perspective as an insurance agency; now they understands the links. Creating a new working relationship has been one of the most important things for the agency.

Implications of data collection process

The above has a two main implications for future evaluation. First, this pilot appears to have succeeded in allowing local bundling of clinical pathways into a package of reforms that have the potential to change relationships between main stakeholders in the local health system, improve cost effectiveness of health care delivery, reduce costs to patients, improve overall management of the health system and reduce improper levels of autonomy of

[29] Note also that in Huangdao (cf. Indicator 4, above), enthusiasm of departments currently not implementing clinical pathways was widely credited to those departments' belief that implementing clinical pathways would be good for the bottom line and therefore for staff remuneration.

healthcare providers. This is a substantial accomplishment. An evaluation that focuses too narrowly on clinical pathways risks downplaying the importance of what is being achieved. The evaluation of the NICE/CNHDRC pilot should include this. Second, the pilot has achieved a difficult balancing act of getting buy in from major local stakeholders. This is critical to success of the pilot and should be part of any future evaluation. Caveats to this, however, include the difficulty of investigating in detail hospital management systems, finances and how staff remuneration packages have been altered to create positive financial incentives and thereby ensure enthusiasm of clinical staff.

Recommended refinements to indicator and protocol

Evaluation should consider how to more fully capture the composite 'clinical pathways+' pilot that has been outlined here. This provides a compelling story regarding how to create change. Methods for doing this should build on this indicator.

Conclusions

The NICE/CNHDRC pilot is a pilot of a strong composite reform with potential to solve problems of real relevance to Chinese stakeholders.

China has had policy on clinical pathways since 2009, but the failure to adequately link these to other reforms, including reform of provider payment systems, and hospital management systems, limits the usefulness of national policy. This pilot links well-designed clinical pathways with other needed reforms to attempt to change county-level health system functioning. On present evidence, CNHDRC, working with NICE, have packaged a handful of clinical pathways into a more comprehensive local reform and achieved buy in from county-level stakeholders (health system managers, health insurance managers, hospital managers, medical staff). Overall, local reactions are very positive. Possibly the most important changes visible during the site visits (especially Qianjiang, which was a more successful visit than the Huangdao visit) are changes in the way in which healthcare management is being re-conceptualised. Clinical pathways function as a tool within this integrated reform package. Overall, this combination appears to be strong and to be viewed as very useful by county-level stakeholders.

A number of conclusions can be drawn from this:

1. Clinical pathways have to be integrated into development of other systems and cannot be a standalone reform. The pilot was designed with this in mind.
2. Local stakeholders, whether government (health system and health insurance managers) or hospital managers and medical staff, have been key to this reform, with very substantial development of the means of reform happening at the county level and through county-level negotiations facilitated by CNHDRC.
3. NICE and CNHDRC appear to have found a good formula, which allows NICE to integrate its technical expertise with a dynamic and resourceful Chinese policy research/practice agency in such a way that this can be brought into the county-level policy process and become part of a useful reform. NICE and CNHDRC appear to bring different, but complementary, expertise that has been successfully integrated in developing a project of real usefulness to Chinese health system managers and policymakers. This is a substantial achievement.

Influence of NICE International's work in China appears to be broader than simple scale up of this pilot.

Policy influence

1. National policy influence: As clearly stated by Liang Wannian, this pilot is providing a model for development of national policy and will be replicated in 1,000 counties and 100 cities nationwide. This is a very substantial achievement.
2. Sub-national policy influence: The pilot is developing substantial policy traction, in both Chongqing/Qianjiang and Qingdao/Huangdao. This is a substantial achievement. Saying this, it will be important to see how other counties implement this model, and how technical support is managed to ensure that implementation is of evidence-based clinical pathways, and does not become codification of non-evidence based practices.

Other forms of influence

In addition to the direct forms of influence envisaged by this data collection exercise, a number of other forms of influence are visible:

1. According to one CNHDRC interviewee, overall the impact of the project has been greater than the impact of the pilots: the NICE project has had a large impact in changing ideas at central/policy levels. This impact is probably greater, and of greater importance, than specific pilot experience. CNHDRC have been very good at

leveraging this and getting central people involved in meetings, discussions of the pilots, and the like. They also have a direct policy channel to the centre. This demonstrates that NICE's collaboration was well designed: they found people who could mainline this into the policy centre.

2. According to the same interviewee, NICE are creating a reputation for the UK in this area. In his view, it used to be that Chinese healthcare analysts and government looked predominantly to the US (mainly Harvard) for models for healthcare management. This has now changed: now the main foci of attention are the UK and Canada, in that order; attention to the US has diminished and now is more focused on specific professors, rather than on US experience more broadly. In terms of consolidated importance, the UK dominates. This is believed to be of greater importance than the pilots and shows an overall change in leadership thinking.
3. An indicator of the above is the work CNHDRC (Zhao Kun's group) are now getting. They're becoming more and more important, are in great demand, and are unable to take on all the work they're being asked to do. The knock on effect is that others who have been involved in CNHDRC clinical pathways work for some time, are getting asked to do the projects that CNHDRC can't take on.

Implications for future evaluation

There are a number of implications for the future evaluation of the NICE/CNHDRC pilot specified in this report. NICE has a good story to tell on contributing to change in health system management and policy change in an area of pressing need in China. to better tell this story, future evaluation should more fully take into account the composite and integrated nature of the reform being piloted here. There is consensus that a standalone pilot of clinical pathways in China would have been unable to solve the very pressing problems facing county-level health system managers. NICE's achievement has been to build a synergistic partnership with a dynamic Chinese research agency firmly plugged in to both sub-national and national policy agendas, and capable of negotiating and facilitating local-level reforms. Through this, NICE's technical expertise has been channeled into a composite pilot/reform which is now providing leverage for sub-national policy change and, one can hope, national change. This is a very compelling story to be able to tell.

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Annex A. List of stakeholders interviewed

Meeting	Date	Person/people
Huangdao		
01	14.11	Large formal meeting in Huangdao District People's Hospital (HPH). Main participants: Ding Bangguo, Director of HPH Wang Ming, Director of clinical pathways work at HPH Director Chai, Neurology Department Doctor Zhang, Neurology Department
02	14.11	Small follow up discussion with: Director Chai, Neurology Department Doctor Zhang, Neurology Department
03	14.11	Formal meeting with heads of main relevant government departments: Wei Renmin, Vice Director of Qingdao City Health and Family Planning Commission Zhu [first name not known], Vice Director of Huangdao District Health Insurance Agency Qu Bo, Director of Huangdao Health and Family Planning Commission
Qianjiang		
01	17.11	Large-scale formal meeting in Qianjiang Central Hospital (QCH): Presentation by Director Liu Zhonghe, QCH; followed by Q&A session with Liu, Director Zheng, Qianjiang Bureau of Health, and Director Ma Xiangdong, Qianjiang Health Insurance Agency
02	17.11	QCH Clinical Pathways Department: interview with Director Zhang
03	17.11	QCH IT department: interview with director Ran Xiaoya, Gong Jian
04	17.11	QCH obstretrics department: interview with vice-director Li Xiaolan
05	17.11	QCH gastroenterology department: interview with director Luo Tao
06	18.11	QCH respiratory diseases department: interview with director Cheng Pengjiang
07	18.11	Qianjiang Health Insurance Agency: interview with director Ma Xiangdong
08	18.11	QCH neurology Department: Director Wang Rongyao, Doctor Zhang Chunggang
09	18.11	QCH neurology Department: Tan Xiaoyan and Liang, nurses
10	18.11	QCH orthopedic department: Doctor Yang, nurse, Doctor Yi
11	18.11	QCH surgery (*puwai ke*) department: interview with director, Zhang Jing

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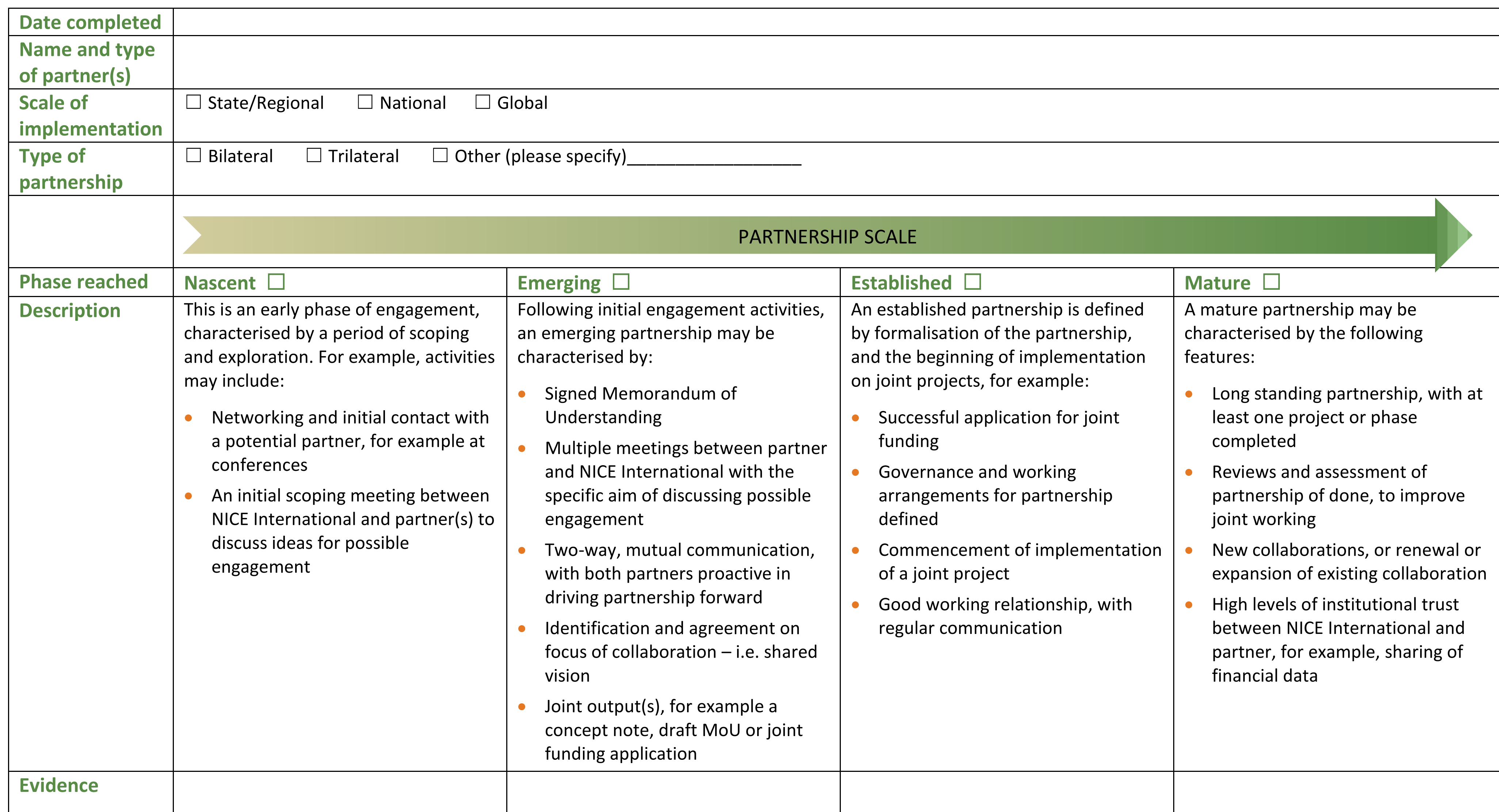
Annex C. Scale for Plotting Extent of Adoption of Similar Processes

Phase	Interest	Early engagement	Scoping	Initiation of development	Product finalisation	Product implementation
Description	This is an early phase of the process, characterised by some level of **expressed interest** by stakeholders in other locations: • Interest is expressed casually/informally • Likely to result from ad hoc contact (for example, at meetings or social events) or engagement with publications/ presentations by stakeholders from focal project. • Interest may be superficial or genuine, and may or may not be followed up	Following an initial expression of interest, this phase is characterised by **proactive learning** on the part of the stakeholder(s), indicative of genuine interest; for example: • Study visit to location of focal product implementation • Attendance at meeting convened by stakeholders from focal project • Request to NI or stakeholders engaged with focal product for more information • Sustained contact between stakeholders in new location and those engaged with focal product (or NICE International)	The planning phase is characterised by actions that illustrate an **intention to implement** a process of QS/CP development, such as: • Plans for development of QS/CP approved • Funds for development process secured • Local human resources committed • Key stakeholders identified	This phase represents the **start of the development process:** • Working group (or other committee of key stakeholders) convened • Review of existing guidance and background research conducted • First meeting of QS/CP development group held	This phase is characterised by the **completion** of the QS/CP product: • Development process completed • Consultation with wider group of stakeholders may be conducted • QS/CP published • Associated publicity, for example media reports, and government statements, letters or circulars	This phase is focused specifically on the implementation of the product: • QS/CP implemented in at least one healthcare facility • Instigation of reforms/management systems associated with QS/CP

Type of scale-up[30]	Phase reached and supporting evidence					
Development of new QS/CP for focal condition within focal location[31]	Interest ☐ Evidence:	Early engagement ☐ Evidence:	Scoping ☐ Evidence:	Initiation of development ☐ Evidence:	Product finalisation ☐ Evidence:	Product implementation ☐ Evidence:
Development of QS/CP for new condition within focal location[32]	Interest ☐ Evidence:	Early engagement ☐ Evidence:	Scoping ☐ Evidence:	Initiation of development ☐ Evidence:	Product finalisation ☐ Evidence:	Product implementation ☐ Evidence:
Development of QS/CP for focal condition in new location [33]	Interest ☐ Evidence:	Early engagement ☐ Evidence:	Scoping ☐ Evidence:	Initiation of development ☐ Evidence:	Product finalisation ☐ Evidence:	Product implementation ☐ Evidence:
Development of QS/CP for new condition in new location [34]	Interest ☐ Evidence:	Early engagement ☐ Evidence:	Scoping ☐ Evidence:	Initiation of development ☐ Evidence:	Product finalisation ☐ Evidence:	Product implementation ☐ Evidence:

[30] **Bold indicates generic types of scale-up; footnotes indicate the specific illustrative examples for the PPH pilot**
[31] *For example, QS linked to maternity care/PPH, in Kerala*
[32] *For example a QS for a condition other than PPH, in Kerala*
[33] *For example, QS linked to maternity care/PPH in a new location*
[34] *For example a QS for a condition other than PPH, in a new location*

Annex D: Form for classifying NICE International's partnerships



Date completed				
Name and type of partner(s)				
Scale of implementation	☐ State/Regional ☐ National ☐ Global			
Type of partnership	☐ Bilateral ☐ Trilateral ☐ Other (please specify)___________________			
	PARTNERSHIP SCALE			
Phase reached	**Nascent** ☐	**Emerging** ☐	**Established** ☐	**Mature** ☐
Description	This is an early phase of engagement, characterised by a period of scoping and exploration. For example, activities may include: • Networking and initial contact with a potential partner, for example at conferences • An initial scoping meeting between NICE International and partner(s) to discuss ideas for possible engagement	Following initial engagement activities, an emerging partnership may be characterised by: • Signed Memorandum of Understanding • Multiple meetings between partner and NICE International with the specific aim of discussing possible engagement • Two-way, mutual communication, with both partners proactive in driving partnership forward • Identification and agreement on focus of collaboration – i.e. shared vision • Joint output(s), for example a concept note, draft MoU or joint funding application	An established partnership is defined by formalisation of the partnership, and the beginning of implementation on joint projects, for example: • Successful application for joint funding • Governance and working arrangements for partnership defined • Commencement of implementation of a joint project • Good working relationship, with regular communication	A mature partnership may be characterised by the following features: • Long standing partnership, with at least one project or phase completed • Reviews and assessment of partnership of done, to improve joint working • New collaborations, or renewal or expansion of existing collaboration • High levels of institutional trust between NICE International and partner, for example, sharing of financial data
Evidence				

(record which activities are being done)				

Annex E. Summary of classification of letters

Title of legislation/regulatory circular	
Date published	
Source of circular	
Target of circular	
Scale of application	☐ Local ☐ Region/state ☐ National ☐ Multinational
What aspects of evidence-informed priority setting are the subject of the circular? (tick all that apply)	☐ Implementation of QS/CP to improve quality of care or health indicators ☐ Use of clinical evidence ☐ Use of cost-effectiveness data ☐ Transparency in decision-making ☐ Establishment of regulatory body ☐ Staff redeployment linked to implementation of QS/CP ☐ Training linked to implementation of QS/CP ☐ Allocation of funds / budget revisions linked to implementation of QS/CP ☐ Procurement (e.g. of infrastructure or equipment) linked to implementation of QS/CP
Notes	.