



Work Package 3

Impact of financing/payments schemes and price-setting for ICC for multi-morbidity

Summary Deliverable report 1: Guide to payment schemes

Summary Deliverable report 2: Panel data analysis

Summary Deliverable report 3: Guide to pricing

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This report in the context of SELFIE

SELFIE is a Horizon2020 EU project that will contribute to the current state of knowledge of integrated chronic care (ICC) for persons with multi-morbidity and provide applicable policy advice. We aim to generate evidence on the impact of promising ICC programmes and supporting financing/payment schemes on health and well-being outcomes, experience, and costs. Specific ICC programmes for multi-morbidity will be empirically evaluated using multi-criteria decision analyses (MCDA). The definitions of multi-morbidity and ICC in the SELFIE project can be found in Box 1.

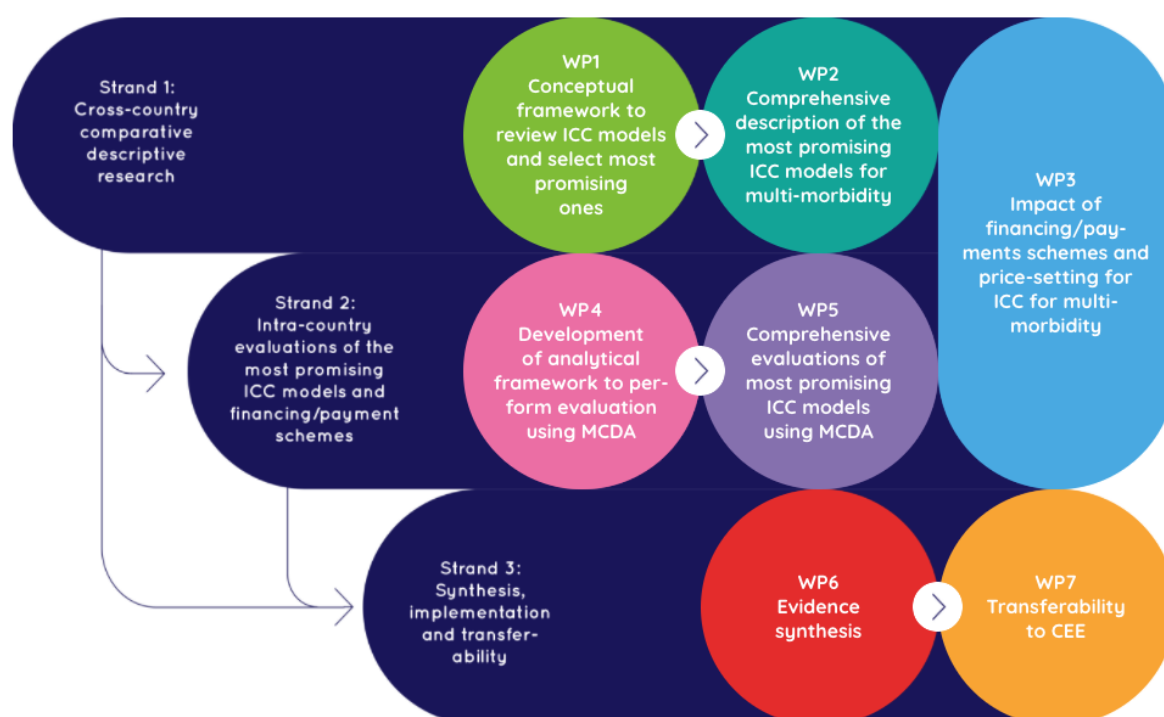
Box 1 Definitions of multi-morbidity and integrated chronic care in SELFIE

Multi-morbidity in the context of SELFIE refers to multiple (i.e., at least two) chronic conditions, physical or mental, occurring in one person at the same time, where one is not just a known complication of the other.

Integrated chronic care (ICC) in the context of SELFIE refers to structured efforts to provide coordinated, pro-active, person-centred, multidisciplinary care by two or more communicating and collaborating care providers that may work at the same organisation or different organisations, either within the healthcare or across the health care, social care, or community care sector (including informal care).

In SELFIE three research strands are distinguished, with 9 work packages (see Figure 1), 7 of which are content based (WP8: Communication and dissemination, WP9: Management):

Figure 1 SELFIE strands of research and work package (WP) overview (Click to see overview on the SELFIE website)



In WP1 a conceptual framework for integrated care for multi-morbidity was developed. Furthermore, promising integrated care programmes for multi-morbidity in each of the SELFIE partner countries were identified, and 17 were selected (2-3 per partner) (see [website](#) for an overview of these programmes). In WP2 these 17 programmes were described on the basis of the framework developed in WP1, using both document analyses and interviews. This resulted in 17 ‘thick descriptions’ that were compared across countries.

In WP3 the impact of different financing and payment schemes is being investigated. This WP makes use of the descriptive research on this topic in WP2 and the empirical evaluations in WP5, but it also investigates the impact of different funding and payment schemes, independent of the 17 programmes. Hence, WP3 overlaps strand 1 (descriptive, cross-country) and 2 (evaluative, intra-country). The *University of Manchester, UK* leads WP3, with the *Technical University Berlin (TUB), Germany* as co-leaders.

The objectives of WP3 are to:

1. Identify theoretical and applied financing and payment schemes (e.g. pay-for-performance, capitation) as well as distinguish financial incentives at micro, meso, and macro levels provided by each scheme to treat multi-morbidity.
2. Determine the conditions (including characteristics of the health care system) for the successful implementation of these schemes (e.g. appropriate case-mix adjustment).

3. Estimate the impact of introduced chronic care payments on health care expenditures, quality of care, and efficiency at regional/national level.
4. Distinguish which of the financial incentives were applied in the selected best practices, what cost components were included and how prices were set.
5. Develop a methodology for price-setting for ICC models.

Summary Deliverable report 1: *Guide to payment schemes*

The first task aimed to understand which financial incentives are being used in the 17 programmes selected for inclusion in the SELFIE project. The various base payment incentives and specific incentives for integration have been outlined in the description of task one. With these as our reference point, we asked three **research questions**: 1) Which incentives do the existing payment systems provide for integration of care? 2) To what extent do macro level incentives in the 8 SELFIE countries exist to support integration of care? 3) To what extent do payment mechanisms in the 17 SELFIE integrated care models support integration?

To investigate how financial incentives were used in the 17 selected programmes, we relied on two sources of **data**: data on the specific financial incentives in each programme supplied by national partners, and qualitative thick descriptions of payment and financing included in WP2.

To analyse the base payment incentives and specific payment incentives for integrating care, we collected data that allowed us to map the flows of funding between all payers and providers/professionals involved in each of the selected programmes. The data collection took form of a questionnaire which described funding flows according to Quinn's classification of payment methods. This classification is replicated in **Table 1**. The same methodology was used to collect information on how health care professionals across the different sectors (e.g. health and social care) were paid.

Table 1: *Basic methods of payment in health care*

| Unit of payment | Common Term |
|-----------------|---------------------|
| Per time period | Budget/Salary |
| Per beneficiary | Capitation |
| Per recipient | Contact Capitation |
| Per episode | DRG/Bundled payment |
| Per day | Per diem |
| Per service | Fee for service |
| Per cost | Cost reimbursement |
| Per charges | % of charges |

Source: Quinn (2015)

Note: The unit of payments are not mutually exclusive and can be used in combination. For example, bundled payment typically pay for care within a specific time period. The unit "per cost" can seem

confusing but is intended to characterize cost reimbursement schemes that pay providers on the basis of their reported costs. “Per charges” is similar but reflects payments on the basis of a bill (where the provider set a charge rather than just reporting costs).

Furthermore, we used data collected in WP2 of the SELFIE project to describe the macro level policies in place in each country. Following a conceptual framework of integrated care in multi-morbidity (see WP 1 deliverable), the ‘thick descriptions’ for SELFIE WP2 gathered qualitative evidence on six components of the programmes, including a component on financing. Each component was divided into a micro-, meso- and macro-level and the latter was used to inform the description of macro-level financing in each country.

Analysing the **existing payment models** in the contexts in which the 17 programmes operated, we found that the dominant payment mechanisms in primary, secondary and social care do not provide optimal incentives for providing care for patients with multiple chronic conditions. The payment mechanisms that are most commonly used for paying for primary and secondary care, fee-for-service and DRG-based payments, provide strong incentives for activity, i.e. treatment of acute onset of illness, but few incentives for the preventative long-term perspective on care that has been highlighted as necessary for patients with multiple chronic conditions. DRG-based payments which include some sort of risk adjustment go some way in addressing a potential selection of low-cost (less complex) patients otherwise present in fixed price payment schemes.

The other common payment mechanism for primary care—capitation—provides incentives to minimise care that are only offset by a motive to attract patients to the list by providing good quality care if the costs of doing so are lower than the expected value of the additional capitation payments. This appears unlikely for patients with multiple chronic conditions. The most common payment model in social care—per diem payments—is typically not risk adjusted and thus creates incentives for providers to either avoid caring for patients with complex needs, or to extend the care period until the costs have been regained.

Analysing the **Macro level incentives** for integration we found that although all countries participating have some experience with national policies aiming to incentivise integrated care, there is large heterogeneity in the scope and lifespan of the macro level incentives for integration: Germany was first with its Disease Management Programme pilots in 1993 and new incentive schemes to support innovation in care delivery have been continuously introduced. Other notable examples are the UK and its Integrated Care Pilot policies which provided short-term start-up funding for selected locally designed integrated care initiatives from 2009, and the bundled payments for primary care introduced

in the Netherlands from 2010. Although Austria was relatively early with its “Reformpool” introduced in 2005, the programme had little success and was discontinued in 2013. The Norwegian coordination reform introduced in 2012 can be seen more as an attempt to align incentives between care sectors than incentives directly aimed at stimulating integrated care. Although both Hungary and Croatia have seen some pilot funding available for integrated care, these have been short-lived, and there are currently only weak national incentives for integrating care. The macro level incentives referred to for each country are summarised in **Table 2**, below.

Table 2: *Summary of macro level incentives for integration across the SELFIE countries*

| Country | Macro level incentives for integration |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Austria | Reformpool (2005-2013) |
| Croatia | Some pilot funding previously available for integration, but no current financial incentives for integration. |
| Germany | Pilots of Disease Management Programmes (1993-), Integrated care programmes (2000-) , Federal Joint Committee and Innovation Fund (2016) |
| Hungary | Previous initiatives reliant on EU funding. No current macro incentives except one P4P indicator in primary care |
| The Netherlands | Bundled payments (2010), Population based payment pilots (ongoing), long-term care reforms, e.g., removing silos in payments for home care (2015) |
| Norway | Coordination reform (2012) |
| Spain (Catalonia) | GMA: Adjusted multi-morbidity groups, P4P |
| England | Integrated Care Pilots (2009-12), Integrated Care and Support Pioneers (2013), Devolution (2016) |

The analysis of **programme level incentives** showed that six of the 17 programmes included specific financial incentives to stimulate integrated care. The German Gesundes Kinzigtal included pay for coordination and a shared savings programme as a supplement to existing reimbursement schemes. The shared savings scheme realised in the Kinzigtal region is compared to German standardised cost and a reference period before the intervention, and savings are shared between the sickness fund and the physician network through OptiMedis AG, a management company.

The Proactive Primary Care Approach for Frail Elderly (U-PROFIT) in the Netherlands use pay for coordination payments on top of base payments where a case management module funds the coordination of complex care needs, and a module to support collaboration in primary care mainly provides financial support for the collaboration between the GPs and the home care organisations. The two other Dutch programmes Care Chain Frail Elderly (CCFE) and Better Together in Amsterdam North (BSiN) both include bundled payments to incentivise integrated care. In CCFE the bundled payment is a fixed amount of money per frail elderly to provide all primary care in a one-year period including disease-specific care and replaces the fee for all consultations in primary care. In BSiN the bundled payment is applied to individual care organisations for case management, i.e. per case management trajectory coordinated by a case manager from their organisation. This payment model is unique in that the health and social care budget is pooled into one budget to provide integrated care.

In England, the Salford Integrated Care programme also funds care through a pooled health and social care budget which shares the financial risk and decision making between the payer and provider for health care (the CCG), the payer and provider for social care (the City Council) and the two local hospitals. Work is currently on-going to form one Integrated Care Organisation (ICO) – akin to an American ACO model, with a simplified contracting arrangement, e.g. single payer and provider of services. Finally, in the South Somerset Symphony Programme, the payment model has changed for a sub-set of ‘integrated’ GP practices, which have volunteered to be incorporated in a newly formed Ltd company (Symphony Healthcare Services Ltd) owned by the local District hospital. Core contract payments (known as General Medical Services and Personal Medical Services contracts) continue to run straight to practices, but other funding options will run through Symphony Healthcare Services Ltd as an integrated manager. An alliance contracting model ensures that all providers are working to the same contracted objectives and share risks, and, in the longer run, work is on-going to develop an Integrated Accountable Care Organisation (IACO) - a core Joint Venture (JV) group between GPs and the local hospital to hold an Outcome Based Commissioning (OBC) contract with the payer. Both the Salford Integrated Care programme and the South Somerset Symphony Programme have also been supported by start-up (pump-prime) funding available through national policies, which they partly use to reimburse providers for time spent on the programme, a form of pay for coordination.

Next, we combined findings from the literature with the results from our analysis of the in-practice payments from the SELFIE programmes (detailed above). In summary, we found that there is currently a gap between rhetoric on the need for new payment mechanisms and those implemented in practice. Current payments for integrated care are mostly sector- and disease-specific, with questionable impact on those with the most need for integrated care (i.e. multi-morbid patients). Furthermore, new

integrated payment terms were being used with no single meaning or definition. For example, a ‘bundled payment’ could mean payment covering a single episode of care, or care over a defined time-period. It may also only cover care for a single disease, or all of a patient’s care in a single or over multiple care sectors (e.g. primary and/or secondary care). We identified that bundled payments, and other payments that also aim to further integrate care, could not be fully described and did not fit neatly within existing typologies. Neither was it possible to assess on which aspects these payments differed from traditional payment mechanisms in terms of hypothesised effects on integration using these existing typologies. Therefore, policymakers and designers of payment methods could not explicitly explore their options and current trends in incentive approaches.

To tackle this deficit in the current literature, we published our own typology in the journal *Health Policy*, titled “Towards incentivising integration: A typology of payments for integrated care”.

The typology describes payments in terms of eight dimensions (See **Table 3**). Payments vary across:

- The scope of payment: (i) Target population, the target population that the payment covers; (ii) Time, the period of time that the payment covers; (iii) Sectors, the number of health and care sectors (e.g. primary/secondary/social care) covered within the payment, i.e. does it incentivise horizontal or vertical integration;
- The participation of providers: (iv) Provider coverage, the extent of total providers within the sectors (and geography) covered by the payment; (v) Financial pooling/sharing, extent to which providers share risk and reward, incentivising interdependency issues to be addressed, e.g. through pooling funding/shared savings;
- The single provider/patient involvement: (vi) Income, the proportion of the providers’ total income that is attached to the payment, i.e. a measure of how much skin they have in the game; (vii) Multiple disease/needs focus, the extent of an individuals’ total potential health and care needs (i.e. services) covered by the payment; and (viii) Quality measurement, the holistic nature of the measurement that the payment/quality measures account for, e.g. measured on a single measure of the care process (which may or may not affect the patient outcome) or more holistically accounting for the final outcomes of the patient.

On each dimension a payment can be described as incentivising low, medium or high levels of integration.

Table 3: Typology of payments for integrated care

Typology of payments for integrated care. The number in [] indicates the score in terms of level of integration, as described below.

| Category | Level of integration Domain | Low integration [1] | Medium integration [2] | High integration [3] |
|-------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| Scope of payment | Target population | Payment covers one specific patient group e.g. 'high-risk' | Payment covers slightly wider defined group e.g. over 65s | Payment covers all patients in catchment area |
| | Time | Payment covers one contact | Payment covers multiple contacts e.g. during an episode of care | Payment covers care over a longer period e.g. a year |
| | Sectors | Payment covers care delivered by single sector e.g. primary care only | Payment covers care delivered by two sectors e.g. primary and social care/ primary and secondary care | Payment covers care delivered by three or more sectors e.g. primary, secondary and social care |
| Participation of providers | Provider coverage | Payment covers one provider only within the participating sectors e.g. a single GP practice within primary care | Payment covers care at multiple providers within the participating sectors e.g. all primary care providers and a proportion of secondary care providers | Payment covers care at all providers within the participating sectors e.g. all primary and secondary care services within the area |
| | Financial pooling/sharing | No pooled funding/ shared savings for providers | Proportion of budget is pooled/ savings shared for the defined horizon for providers | Total health and care budget is pooled/savings shared for the defined horizon for providers |
| Single provider/patient involvement | Income | Payment provides a small proportion of providers' total income | Payment provides a relatively large proportion of providers' total income | Payment provides the largest proportion of providers' total income |
| | Multiple disease/needs focus | Payment covers care for one condition for a single patient e.g. diabetes care only | Payment covers care for multiple conditions for a single patient e.g. all chronic condition care | Payment covers all care for a single patient e.g. all health and social care needs |
| | Quality measurement | Payment measures/rewards process measures e.g. number of health checks | Payment measures/rewards intermediate measures and lifestyle behaviour e.g. HbA1c, smoking | Payment measures/rewards health outcome measures e.g. Quality of life |

Payments are described within the geographical limits of the defined integrated care programme. By ranking payment mechanisms (low to high integration) on the eight domains above, different payment mechanisms can be compared in terms of their expected effects on integration.

The typology developed in this study provides a basis to (re-)design, compare, and monitor provider payments that incentivise more effective and efficient care systems.

Summary Deliverable report 2: *Panel data analysis*

There is a substantial literature on the effects that different types of payment systems have on levels of health care utilisation and expenditure and, to a lesser extent, on health outcomes. However, very few of these papers examine whether there are differential effects for patients with multi-morbidity.

There are several reasons to believe that individuals with multi-morbidity will be affected differently. Because individuals experiencing multi-morbidity are frequent and high-cost users, they are more likely than other patients to be impacted on by payment reforms that seek either to increase access and utilisation or to decrease utilisation and control costs. Because they have multiple health conditions, they are also more likely to be affected by any initiatives targeted at specific health conditions. More broadly, they may experience spillover effects because several components on disease-specific integrated care programmes (e.g. lifestyle management, medication adherence interventions) might have positive effects on other diseases as well.

We aimed to estimate the impact of introduced payment mechanisms on the ‘triple aim’ outcomes of the health system using panel data analysis. We do this at two levels: 1) within-country level, using data collected by each of the SELFIE partners, examining any regional/country introduction of payment schemes over time; 2) cross-country level, using readily available country-level data and examining effects of introduction of national payment schemes over time. For both analyses, based on the evidence in the current literature, we assume that multi-morbid patients are at most risk for the negative effects of fragmented care, and so most sensitive to any effects of payment mechanisms on the process of integration via influencing provider behaviour. Therefore, effects of all payment mechanisms may impact differently on outcomes for this subgroup of patients, and we are particularly interested in examining any differences in results between multi-morbid and a non-multi-morbid group.

1) Within-country level analysis

We were able to conduct rigorous within-country analysis separately for three specific integrated care payment mechanisms in the UK, the Netherlands, and Norway. For each, we use a difference-in-differences analysis utilising routinely collected individual-level claims data in each context. These are summarised below.

UK (the Better Care Fund) (analysis by UNIMAN team)

An increasing global burden of chronic disease and multi-morbidity requires new models of care delivery. A number of new care models aim to better integrate care across sectors, and to shift the

bulk of care delivered out of hospital to an assumed cheaper primary and community care setting. These models aim primarily to reduce overall costs through decreased utilisation of secondary care. Theoretically, pooling health and social care funding is one method of incentivising care delivery at the lowest effective level.

The Better Care Fund (BCF) is a large pooled health and social care funding scheme, mandated from April 2015, but gradually taken up by local health areas in the year before. We exploit this gradual roll-out as a natural experiment. We construct a cohort of 14.4 million patients receiving care in the financial years 2007/08 and 2008/09 from the Hospital Episode Statistics database, and follow these patients over time (annually), recording all hospital utilisation and costs up to 2015/16. We examine effects of the BCF on a number of hospital utilisation and total cost measures. We look for differential subgroup effects for those with multimorbidity.

We found no overall effects of the BCF intervention on secondary care utilisation or cost. We identified some potentially differential effects for multimorbid patients. The use of some types of hospital services increased for multimorbid patients following implementation of the pooled budgets, including bed days (+3.8% of the mean), emergency department attendances (+2.5%), and probability of 30-day re-admission (+1.1%). This produced an increase of £32 (1.4%) in total hospital costs per multimorbid patient per year.

There do not appear to be beneficial overall effects of pooled health and social care funding through the BCF. There appear to be some differential effects by multimorbidity subgroup, with findings in line with the integrated care interventions that pooled funding incentivises. In the short term, pooling health and social care budgets alone does not appear to increase quality nor reduce costs.

The Netherlands (Bundled payments) (analysis by EUR team)

Integrated care programmes have been implemented in the Netherlands with various financial arrangements. Bundled payments for integrated primary care services for several chronic conditions were the most significant of these programmes. The objectives were to improve the quality and efficiency of primary care and control the increasing healthcare expenditures. This study aimed to investigate the association between the integrated care innovations and healthcare expenditures in the Netherlands.

Claims data from 2008 to 2015 from all Dutch health insurers was used. The data include all expenditures covered by the basic health insurance, including primary care, medications, and hospital care. Enrolment in an integrated care programme was identified based on payment codes for integrated care services. The dummy variable for intervention was set to one from the start of the individual's participation in a programme onwards. A control cohort of individuals with no integrated

care enrolment was matched to the intervention cohort based on total health care costs, gender, age, economic deprivation, and type of chronic conditions in 2008. We used a staggered difference-in-difference analysis with time and individual fixed effects to assess the association between integrated care programmes and total healthcare costs. We estimated separate regressions for diabetes, COPD, and Vascular Risk Management.

The intervention and control cohort consisted of 2.8 million and 1 million individuals. In 2008, both cohorts were of similar age (median 70), gender (female 51%), and had similar costs (€1600, semi-annual), although more people in the intervention cohort used medication (89% vs. 79%) and hospital care (65% vs. 54%). The results showed higher healthcare costs in the integrated care group ranging from the first period of integrated care until the final 8th year follow-up. The increased cost range was in the order of €200-500. Most of the increase was associated with the increased cost of the bundled payment, but also with the increase in medication and medical specialist costs. For example, for diabetes the percentage increase in costs were 33% for medical specialist care, 12% for medication, and 50% for the bundled payment itself for the first period of enrolment in the bundled payment. The results were stable with a host of sensitivity analysis.

The results indicate a positive association between enrolment in integrated care and healthcare costs. This is not in line with the objective of these programmes but it is similar to earlier findings in the Netherlands. Improved prevention and medication adherence from integrated care programmes may be a reason; however, this is not resulting in long-term lower costs.

Norway (the Coordination Reform) (analysis by UiB team)

There is no consensus on optimal implementation of pay-for-performance (P4P) schemes. In an effort to accomplish integration of care, and with the explicit aim of reducing the number of unnecessary uses of hospital care, Norway implemented the Care Coordination Reform (CCR) in 2012. The CCR introduced three novel economic incentives for all municipalities: a municipal co-payment scheme (abolished in early 2015), a penalty scheme, and subsidies for establishing emergency bed capacity (EBC). The Municipal co-payment scheme forced municipalities to internalise some costs of hospital admission by paying 20 percent of the national average cost for specific diagnoses-related groups (DRGs) (medical but not surgical). The study aims to examine the effects of this scheme on the length of stay (LOS) in hospital, emergency readmissions in hospital within 28 days, and survival probability within 30 days after hospitalization and whether there are differential impacts for multimorbid patients.

Data comes from the Norwegian Patient Registry (NPR), providing information on different hospital care use (inpatient, outpatient, planned and emergency), DRGs, multimorbidity status, whether

transfer to patients' home or institution after hospitalization and death date. Patients' socioeconomic conditions are gathered from the Statistics Norway's database. We construct a sample of 510,146 observations (where 197,906 observations are multimorbid) with 30 major chronic conditions who received hospital care during 2010 and 2013. We use the difference-in-differences regression approach (with municipality-fixed effect) where the comparison group is diagnoses that were exempted from municipal co-payment (i.e. surgical diagnoses).

Descriptive statistics indicates that continuous inpatient LOS in hospital is higher for the multimorbid patient (6.8 days) than non-multimorbid (4.4 days) counterparts, emergency readmission probability is also higher for multimorbid patients (8% versus 5%), probability of survival within 30-day after admission is lower for the multimorbid group (91% versus 95%). Our difference-in-differences regression results show that LOS in hospital is positively and significantly affected by the intervention. Nevertheless, the effect is not significant for multimorbid patients. A number of alternative analyses give no indication that municipal co-payment scheme affects the emergency readmission probabilities. Probability of survival is generally found to be indifferent of the intervention for all sorts of patients-multimorbid or not, but give a modest hint of a significant improvement (0.5% probability) for the elderly patients aged 67 years or more. Our supplementary analyses, nevertheless, give a strong indication that survival probability is significantly increased (3.2-3.7%) for the patients who transferred from hospital to institutions (irrespective of the multimorbidity status and age groups).

The introduction of municipal co-payment scheme is difficult to evaluate, as in the Care Coordination Reform (CCR), several incentives were introduced at the same time, on a national basis. This implies that finding valid control groups is problematic. Moreover, due to small number of waves before and after the CCR, it is difficult to check the common trend assumption, and indeed the validity of the causal inference of the intervention on outcomes. The rationales/ mechanisms why the co-payment scheme affects the survival probability positively for a subgroup of the patients- whether transfer from hospital to the institutions-also needs to be scrutinised thoroughly.

2) Cross-country level analysis

We obtained microdata for twenty countries using the Survey of Health, Ageing and Retirement in Europe (SHARE) waves 1, 2, 3 (SHARELIFE), 4, 5 and 6 for 2004 to 2015. We supplemented the dataset with data from the sixth wave of ELSA to include England. We draw on the payment mechanisms as classified by Tsiachristas et al. 2016, shown below in **Figure 2**. Tsiachristas et al. describe three classifications of payment mechanisms to incentivise integration: pay-for-coordination involves payment for different types of providers to co-ordinate care for specific services; pay-for-performance provides a financial incentive for care providers to meet certain performance measures and goals in

the treatment and outcomes of care for chronic conditions; and, the all-inclusive payment scheme comprises of (i) bundled payments, where a single payment is given for a specific condition which could involve multiple services and providers; and (ii) global payments, which cover a specified group of patients' healthcare costs (not only disease specific), over a fixed period of time.

Figure 2: Payment plans in place by year and country

| Country | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|----------------|------|------|---------|------|---------|---------|---------|---------|------|---------|---------|---------|------|---------|
| Wave | | | 1 | 1 | 1/2 | 2 | 3 | 3 | 3/4 | 3/4 | 4 | 5 | | 6 |
| England | | | PFP | PFP | PFP | PFP | PFP | PFP | PFP | PFP | PFP | PFP | | |
| Austria | | | | | PFC | PFC | PFC | PFC | | PFC | | PFC | | PFC |
| Germany | | | PFC/ALL | | PFC/ALL | PFC/ALL | PFC/ALL | PFC/ALL | | PFC/ALL | PFC/ALL | PFC/ALL | | PFC/ALL |
| Sweden | | | | | | | | | | | | | | |
| Netherlands | | | | | | | | | | ALL | | ALL | | |
| Spain | | | | | | | | | | | | | | |
| Italy | | | | | | | | | | | | | | |
| France | | | | PFC | PFC | PFC | | PFP/PFC | | PFP/PFC | | PFP/PFC | | PFP/PFC |
| Denmark | | | | | | PFC | PFC | PFC | | PFC | | PFC | | PFC |
| Greece | | | | | | | | | | | | | | |
| Switzerland | | | | | | | | | | | | | | |
| Belgium | | | | | | | | | | | | | | |
| Czech Republic | | | | | | | | | | | | | | |
| Poland | | | | | | | | | | | | | | |
| Ireland | | | | | | | | | | | | | | |
| Luxembourg | | | | | | | | | | | | | | |
| Hungary | | | | | | | | | | PFP | | | | |
| Portugal | | | | | | | | | | PFP | | | | PFP |
| Slovenia | | | | | | | | | | | | | | |
| Estonia | | | | | | | | | PFP | PFP | | PFP | | PFP |
| Croatia | | | | | | | | | | | | | | |

Notes: Cells shaded grey indicate that no data are available from SHARE/ELSA in that country/year. Empty white cells indicate that no dedicated payment schemes were in place

We use a difference-in-differences (DiD) setup to estimate the overall effects of the introduction of the payment methods. We extend our analysis with a difference-in-difference-in-differences (DiDiD) approach, by adding an additional interaction term indicating multimorbidity. This allows us to observe the differential effects of payment methods on those with multimorbidity compared to the baseline effect of the payment method on patients without multimorbidity.

In summary, our current results indicate that overall, for health: problems with ADL appear to increase slightly with pay-for-performance, but decrease slightly with all-inclusive payments. Self-rated health also decreases with pay-for-performance. Quality of life increases with all integrated care payment types; and for healthcare utilisation: the all-inclusive payment is associated with an increase in overall doctor interactions, while pay-for-performance sees an overall decrease. None of the payments appear to affect overall GP visits. However, pay-for-coordination and the all-inclusive payment method are associated with a reduction in the proportion of doctor contacts with a GP

relative to all contacts with a medical doctor. Pay-for-performance is the only payment mechanism associated with an increase in the proportion of doctor interactions with a GP.

For multimorbid patients, we tend to find differential effects compared to non-multimorbid. For example, quality of life appears to increase for only non-multimorbid people with pay-for-coordination and pay-for-performance (although multimorbid people are the main beneficiaries of increased quality of life with all-inclusive payments). Many of the payments analysed promote single disease-focussed care plans through the implementation of disease management programmes (DMPs) and these may fail to achieve optimal care for multimorbid patients. Physicians may also prioritise those conditions included in the scheme, neglecting the treatment of others. It is also likely that a multimorbid patient may have more than one non-incentivised condition which could magnify this effect.

We conclude that, with those current payment systems analysed at the cross-country level, there is no universal solution when it comes to payment types for integrated care. Policymakers will need to choose based on prioritised outcome goals, considering likely trade-offs. If improving patient outcomes is the aim, our results indicate the bundled payment method may be most appropriate. If it is to strengthen the role of primary care then pay-for-performance could provide suitable incentives to achieve this. Policies may also have wanted or unwanted spill-over effects on different groups depending on whether they have a single chronic condition/multimorbidity and whether or not these conditions are included in the payment method.

Summary Deliverable report 3: *Guide to pricing*

The aim is to develop a method for price setting of integrated care by combining insights from the theoretical literature on price setting with evidence from our results reported above on integration payments.

We began by reviewing the way prices were set in each of the 17 SELFIE case studies where separate payments took place and we had access to information about price setting. Out of the 17 case studies identified in SELFIE, there were only two examples of new price setting models for integrated care. The majority of schemes operate within the existing framework of the health care systems and rarely have the ability to set new prices. The two exceptions to this finding were the Dutch Care Chain Frail Elderly in the region of Southeast-Brabant (CCFE) and Proactive Primary Care Approach for Frail Elderly (U-PROFIT). There are two essential components to setting prices in integrated care schemes. The first relates to setting the budget. This involves defining the price to be paid for the activity covered by the accountable care organisation. The second relates to how to make participating organisations assume joint responsibility for the outcome that multiple parties can affect. The budget setting part of the question in existing payment schemes we found to be treated mostly as an accounting exercise. The financial costs of delivering a particular activity was calculated either on the basis of existing costs or on the basis of an expected level of activity paid for at a particular price.

We then reviewed a recent example from the English National Health Service which developed a methodology to set prices in accountable care organisations consisting of multiple providers. In the English example, which included supporting incentive payments, these were set as a fixed share of the budget, rather than on the basis of appropriateness for the particular activity the incentive was intended to support. To the extent that the payment scheme considers the joint responsibility of participating organisations for a particular outcome, the exact sharing of risk is either down to participating parties' independent negotiation, or, as in the English example expected to occur due to guidelines that do indicate certain aspects to consider, but is relatively silent with respect to actual directions for implementation. However, such an approach is suboptimal from at least two perspectives. Firstly, it is not at all clear that the costs associated with providing a given aspect of integrated care is the optimal amount for payers to pay for integrated care. Secondly, although the gain/loss sharing arrangement of the English example went somewhat in recognising how multiple organisations can contribute to a joint outcome, there is little to indicate that the suggested approach captures all dimensions of how to optimally design a risk sharing scheme given a certain price has been set for a service.

Finally, we considered the properties a price setting mechanism for integrated care should have from a theoretical point of view. The previous deliverables in this work package (summarised above) have shown us that vertical organisational integration is often perceived as a solution to a lack of integrated care, but the empirical evidence shows that existing integrated care is rarely successful in achieving stated aims such as reducing emergency admissions. However, the theoretical literature on price setting suggests that organisational integration may come with its own costs, especially if inputs required are substantially different across sectors. This is the case for primary, secondary and social care, and raises the question of whether organisational integration is in itself desirable, or whether there are other ways of achieving the aims of integrated care. With that background, this work explored whether it is possible to design payment mechanisms for separate organisations that replicate the outcome of an integrated care organisation in terms of patient benefits and costs. This work was undertaken in collaboration with Professor Martin Chalkley, University of York.

We benchmark based on a theoretical integrated care provider. In the example of a fully altruistic provider (not likely to occur in practice), capitation (a bundled payment) would be likely to achieve first best because the provider internalises the patient's benefit. However, in the case of a non-altruistic provider, capitation leads to cost minimisation and does not maximise patient's health benefit (payments could potentially be made dependent on emergency admissions, penalties, to incentivise fewer secondary care episodes). To achieve the same outcome using separate organisations and price-setting, again assuming an altruistic provider as an example, capitation for both providers would be likely to achieve first best for a secondary care provider, but not for a primary care provider as impact on hospital admissions would not be taken into account. For a primary care provider, a payment could instead be contingent on hospital admissions (and there are examples of this in Denmark and Norway). Our working conclusions are that a bundled payment for an integrated care organisation only works if the provider is fully altruistic. If separate organisations, optimal payment model in one sector is dependent on the payment model implemented in the other sector.