



Westsächsische Hochschule Zwickau

Fakultät Gesundheits- und Pflegewissenschaften

BACHELORARBEIT

Herausforderungen für die Wettbewerbsfähigkeit
von Pflegeeinrichtungen

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Hinweise auf besondere Schreibweise

Für eine bessere Lesbarkeit wird in der Bachelorarbeit bei geschlechtsbezogenen Bezeichnungen die männliche Schreibweise verwendet. Männliche Personen- und Funktionsbezeichnungen gelten für Männer und Frauen in gleicher Weise. Dementsprechend ist beispielsweise bei „Pflegebedürftiger“ oder „die Pflegebedürftigen“ die Rede von Männern und Frauen. Zusätzlich ist oft die Rede vom „steigendem Alter“ oder „älteren Personen“. Hier ist die Rede von Männern und Frauen in einem Durchschnittsalter von 65 Jahren und älter.

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1. Einleitung

Das Thema der bedarfsgerechten Versorgung pflegebedürftiger Menschen ist zunehmend Bestandteil vieler Diskussionen in Politik oder Gesellschaft. Nicht selten rückt dabei der Fokus auf den demographisch bedingten Anstieg älterer Menschen. Des Weiteren wird die Zahl der erwerbsfähigen Menschen zurückgehen und ein Mangel an Pflegekräften mit sich bringen. Diese Entwicklung stellt eine zunehmende finanzielle Belastung für viele Industrieländer dar. Staatlich organisierte Programme zur Abdeckung gesundheitlicher und pflegerischer Kosten leisten zunehmend weniger Unterstützung. Besonders Pflegeeinrichtungen leiden unter diesen Problemen, denn Pflegekosten können von einer Mehrzahl der Pflegebedürftigen nicht selbst getragen werden. Ungeachtet dessen finden sich immer wieder neue Pflegeeinrichtungen auf dem Markt. Moderne Pflegeeinrichtungen und spezielle Pflegeangebote sollen die zukünftige Wettbewerbsfähigkeit sichern. Doch die zunehmende Abhängigkeit von Privateleistungen und die wachsende Unternehmenskonkurrenz gefährden oft die individuelle Leistungsentfaltung. Der steigende Pflegebedarf und die wirtschaftliche Beständigkeit der Pflegeeinrichtungen stehen auf den ersten Blick im Widerspruch.

Die Bachelorarbeit wird diesem Widerspruch detailliert auf den Grund gehen und wichtige Zusammenhänge beleuchten. Dabei geht die Arbeit auf Herausforderungen für die Wettbewerbsfähigkeit von Pflegeeinrichtungen ein. Beginnend werden theoretische Grundlagen zur Pflegebedürftigkeit und Pflegefinanzierung vorgestellt.

Anschließend werden im Kapitel der Methodik themenbezogene Studien recherchiert. Diese Datenbankarbeit spielt für die spätere Aussagekraft der Bachelorarbeit eine wesentliche Rolle. Insgesamt vier Studien liefern wissenschaftliche Forschungsergebnisse. Ergebnisse der Einflussstärke von Faktoren auf die Wettbewerbsfähigkeit der Pflegeeinrichtung werden in der Diskussion bewertet und verglichen. Das Kapitel geht zusätzlich auf länderspezifische Unterschiede ein und versucht eine allgemein gültige Aussage herzuleiten, mit deren Hilfe die Fragestellung der Bachelorarbeit beantwortet wird. Den Schluss bildet das Fazit. In diesem Kapitel werden gewonnene Erkenntnisse und deren zukünftige Entwicklung aufgegriffen.

2. Theoretischer Hintergrund

Das Thema:

„Herausforderungen für die Wettbewerbsfähigkeit von Pflegeeinrichtungen“

ist der Ansatzpunkt für die Erstellung eines theoretischen Bezugsrahmens. Die folgenden Ausführungen des theoretischen Hintergrundes bilden die Grundlage für weitere Bearbeitungsschritte.

2.1 Was ist Pflege?

Für den Begriff „Pflege“ existiert keine einheitliche oder gesetzliche Definition. In der Pflegewissenschaft wird die Pflege vielseitig umschrieben. Wichtig ist der Unterschied zwischen Pflege durch Angehörige und Pflege durch ausgebildete Fachkräfte.

2.1.1 Pflege durch Angehörige

Erwartet oder unerwartet kann es vorkommen, dass Personen versorgende Tätigkeiten für eigene Familienmitglieder oder Andere übernehmen. Diese Pflege unter Menschen wird als „laienartige Pflege“ bezeichnet. Einzelne oder mehrere Familienmitglieder und Angehörige übernehmen oft die „Rolle von Pflegekräften“. Sie verfügen jedoch nicht oder nur in laienhafter Ausführung über die fachlichen Kenntnisse einer optimalen und Ressourcen schonenden Pflege. Befindet sich der Grad einer Pflegebedürftigkeit auf einem zu hohen Level, nehmen sich viele Angehörige professionelle Unterstützung. Ein hoher Pflegegrad geht mit anspruchsvollen finanziellen Aufwendungen, psychischen und physischen Belastungen einher.¹

2.1.2 Professionelle gesteuerte Pflege

Ausbildete Pflegefachkräfte übernehmen die professionelle Betreuung und Unterstützung pflegebedürftiger Personen. Pflegekräfte sichern die Betreuung und Pflege

¹Vgl. Deutscher Pflegering/pflegende Angehörige, <https://www.pflegering.de/glossar/pflegende-angehorige/>

von kranken, eingeschränkten oder sterbenden Personen. Die Interessen und Bedürfnisse Pflegebedürftiger werden dabei stets beachtet.

Dieser Zweig der beruflichen Ausbildung im gesundheitlichen Dienstleistungssektor gewährleistet eine optimale und bedeutsame Versorgung von Pflegebedürftigen. Ambulante, teilstationäre oder vollstationäre Pflegeeinrichtungen bieten eine professionelle Pflegedienstleistung an. Die Option einer professionellen Unterstützung mindert den psychischen und physischen Druck auf Angehörige. In Kooperation mit Familien, Lebensgemeinschaften und anderen auch branchenfremden Einrichtungen wirkt sich eine professionelle Pflege in allen Lebenssituationen positiv aus.²

2.2 Professionelle Pflege gewinnt an Bedeutung

Laut dem Statistischen Bundesamt 2015 werden 2,9 Millionen Pflegebedürftige in Deutschland gepflegt, wobei 1,38 Millionen durch Angehörige oder Bekannte gepflegt werden. Meistens leben pflegende Angehörige im gleichen Haushalt und stehen unmittelbar vor dem Renteneintritt. Im Vergleich zu Erhebungen aus dem Jahr 2013 nimmt der Anteil pflegender Angehöriger leicht ab.³ Dieser Anteil wird sich im Voranschreiten des demographischen Wandels noch weiter minimieren. Denn eine älter werdende Bevölkerung betrifft viele Industrieländer und bedeutet nicht nur den Anstieg an pflegebedürftigen Menschen, sondern schwächt die private Pflegebereitschaft.

Die private Pflegebereitschaft wird durch kinderlose Familien, Partnerlosigkeit im höheren Alter oder durch eine zu große Entfernung zu Familienmitgliedern eingeschränkt.⁴

Mögliche, mit dem Alter einhergehende körperliche Veränderungen, wie Muskelatrophien, Osteoporose, Sehinschränkungen und Gangunsicherheiten sind in Kombination mit alters-typischen Erkrankungen wie Parkinson oder Demenz maßgebliche Gründe für die Inanspruchnahme pflegerischer Handlungen. Ist ein Mensch von diesen Erkrankungen und Einschränkungen betroffen, kann beispielsweise eine Fraktur der Hüfte im schlimmsten Fall zu einer schweren und langfristigen Pflegebedürftigkeit führen.⁵ Aufgrund genannter Faktoren ist die verstärkte Inanspruchnahme gesundheitlicher Dienstleistungen zu erwarten.

² Vgl. DBfK/Professionelle Pflege, <https://www.dbfk.de/de/themen/Bedeutung-professioneller-Pflege.php>

³ Vgl. Statistisches Bundesamt Wiesbaden, Pflegestatistik 2013/2015

⁴ Vgl. W. Walla, B. Eggen, H. Lipinski, 2006, S.155 – S.156

⁵ Vgl. Ärzteblatt, <http://www.aerzteblatt.de/archiv/167881>

2.3 Staatliche Unterstützung bei Pflegebedürftigkeit

2.3.1 Deutschland

Staatliche Pflegeangebote werden in Deutschland über gesetzliche Sozialbeiträge finanziert. Grundstein für diese Form der Finanzierung errichtete Otto von Bismarck durch die Einführung der gesetzlichen Krankenversicherung. Heute werden gesetzlich geregelte Prozentsätze vom Lohn abgezogen und fließen in die Kranken- und Pflegekassen ein. Erwerbstätige sind somit gesundheitlich abgesichert.⁶ Die finanzielle Unterstützung in Bezug auf pflegerische Leistungen muss grundsätzliche Richtlinien

erfüllen. Wichtig dabei ist eine Mitgliedschaft bei einer gesetzlichen oder privaten Krankenversicherung, denn diese inkludiert eine Absicherung im Pflegefall. Die Definition der Pflegebedürftigkeit und die damit verbundene Unterstützung richten sich in Deutschland nach den Sozialgesetzbüchern. (SGB XI u. SGB XII) Eine Übersicht verschiedener Leistungsarten und Grundsätze, nach denen die Pflegeversicherung Leistungen ermöglicht, sind im Sozialgesetzbuch XI Paragraph 28 festgehalten.⁷ Der erste Schritt um finanzielle Unterstützung über die Pflegeversicherung zu beziehen, ist die Antragsstellung bei der Pflegekasse. Der Antrag zur Eingliederung in einen Pflegegrad muss von dem Pflegebedürftigen selbst oder im Namen des Pflegebedürftigen gestellt werden. Eine schriftliche Antragstellung ist die häufigste Vorgehensweise. Geht ein Antrag zur Feststellung einer Pflegebedürftigkeit bei der Pflegekasse ein, führt der „Medizinische Dienst der Krankenversicherung“ (MDK) eine Begutachtung durch.⁸ Mit dem Wandel des Begriffes der Pflegebedürftigkeit seit dem 01.01.2017 werden pflegebedürftige Personen in fünf Pflegegrade eingeteilt.⁹ Der Grad der Pflegebedürftigkeit orientiert sich an Einschränkungen der Selbstständigkeit und an Störungen der Fähigkeiten. Je höher der festgestellte Grad der Pflegebedürftigkeit des Pflegebedürftigen ist, desto umfangreicher sind übernommene Pflegeleistungen durch die Pflegekasse.¹⁰

⁶ Vgl. A. Rohwer, 2008 S. 26

⁷ Vgl. https://www.gesetze-im-internet.de/sgb_11/__15.html

⁸ Vgl. Deutscher Pflegering/Pflegestufe, <http://www.pflegering.de/glossar/pflegestufe>

⁹ Vgl. Seniorenratgeber, <http://www.wohnen-im-alter.de/seniorenratgeber-pflegefall-pflegegrade.html>

¹⁰ Vgl. Pflegestärkungsgesetz II, <http://www.kv-media.de/pflegereform-2016-2017.php>

Durch diese Vorgehensweise zur Feststellung der Pflegebedürftigkeit werden Menschen mit kognitiven oder psychischen Erkrankungen besser berücksichtigt. Vor Eintritt der Neudefinition von Pflegebedürftigkeit 2017 gab es für diese Personengruppen keine bis geringfügige Unterstützungen. Aufgrund dieser Veränderungen wird die Zahl der pflegebedürftigen Menschen in Deutschland ansteigen. Eine Leistungserhöhung ab 2017 für Pflegebedürftige hat zur Folge, dass die Beiträge für die Pflegeversicherung für Arbeitnehmer um 0,2 Prozentpunkte anstiegen.

Das Pflegestärkungsgesetz I wirkt als Vorreiter, um das Thema des neu orientierten Begriffes der Pflegebedürftigkeit an die Gesundheitseinrichtungen heranzuführen. In Verbindung wurden 2015 Leistungen der Pflegeversicherung verbessert und die Kombination aus verschiedenen Leistungsarten wurde erleichtert.¹¹ Die Auslegung des Paragraphen 87b SGB XI orientierte sich ebenso an der neuen Definition der Pflegebedürftigkeit zum 01. Januar 2017 und erhöht Leistungen für kognitiv eingeschränkte Personen. Der Paragraph 87b SGB XI fällt mit dem Inkrafttreten des Pflegestärkungsgesetzes II und der Neudefinition von Pflegebedürftigkeit zum 01.01.2017 weg. Ist ein Pflegegrad bestätigt, erhalten pflegebedürftige Personen monatlich finanzielle Unterstützung von der Pflegekasse. Leistungen pflegerischer Art, welche dem Pflegegrad entsprechen, werden finanziell übernommen. Die Höhe der finanziellen Unterstützung ist nach der Versorgungsart festgelegt. Wird ein Pflegebedürftiger durch laienhafte Pflegepersonen versorgt, zum Beispiel durch Familienmitglieder, sind die Unterstützungsbezüge im Vergleich zur ambulanten und stationären professionellen Pflege unterschiedlich. Die nachfolgende Tabelle 1 listet die Vergütungen je Plegegrad auf.

¹¹ Vgl. https://www.pflege.de/pflegekasse-pflegerecht/pflegegesetz-pflegereform/pflegestaerkungsgesetze/#pflegestaerkungsgesetz_1

Tabelle 1: Die 5 Pflegegrade

Pflegegrad	ambulante Pflege ¹²	Tag und Nacht ¹³	Angehörige oder Pflegeperson ¹⁴
Pflegegrad 1	125 Euro	125 Euro	- entfällt -
Pflegegrad 2	689 Euro	770 Euro	316 Euro
Pflegegrad 3	1.298 Euro	1262 Euro	545 Euro
Pflegegrad 4	1.612 Euro	1775 Euro	728 Euro
Pflegegrad 5	1.995 Euro	2005 Euro	901 Euro

Diese Tabelle zeigt die finanzielle Unterstützung bei vorhandener Pflegebedürftigkeit und bei Einstufung in einen Pflegegrad.

2.3.2 Vereinigte Staaten

Die Vereinigten Staaten von Amerika besitzen kein einheitliches System für eine ausreichende Versorgung und Absicherung aller pflegebedürftigen Personen. Kombinationen aus Hilfsprogrammen, privaten Pflegeversicherungen und oft eintretenden Eigenzahlungen bilden das Geflecht der Gesundheits- und Pflegefinanzierung.¹⁵

Die Zahl für Anbieter privater Pflegeversicherungen ist in den Vereinigten Staaten hoch. Zielgruppen sind vermehrt Versicherungsnehmer mit einem mittleren bis hohem Einkommen, deren Beiträge dementsprechend festgelegt sind. Es wird davon ausgegangen, dass sehr wohlhabende Personen keinen Versicherungsschutz benötigen und arme Personen durch den Staat unterstützt werden.¹⁶

Zwei staatlich gesteuerte Programme „Medicaid“ und „Medicare“ bieten finanzielle Unterstützung für pflege- und gesundheitsbedingte Maßnahmen. Ungeachtet dessen werden mehr als 80 Prozent aller Pflegebedürftigen von Angehörigen oder Familienmitgliedern versorgt und gepflegt.

¹² Vgl. https://www.gesetze-im-internet.de/sgb_11/_36.html

¹³ Vgl. https://www.gesetze-im-internet.de/sgb_11/_41.html

¹⁴ Vgl. https://www.gesetze-im-internet.de/sgb_11/_37.html

¹⁵ Vgl. Dr. F. Wild, 2010, S.37

¹⁶ Vgl. U. Pasdika S. 39

Weniger als 20 Prozent können sich eine professionelle Pflege durch ambulante oder stationäre Pflegedienstleister leisten.¹⁷ Pflegekosten in Pflegeheimen werden in den Vereinigten Staaten im Schnitt zu 47,8 Prozent durch Pflegebedürftige selbst getragen. Medicaid übernimmt durchschnittlich 45,6 Prozent. Die restlichen Prozente übernehmen Medicare und sonstige Geldgeber.¹⁸

2.3.2.1 Medicaid

Medicaid ist ein staatlich organisiertes Pflege- oder Leistungsprogramm, welches nur Familien und Menschen mit geringen Einkommen und Mitteln den Zugang zu Gesundheits- und Pflegeleistungen erleichtert. Der Bund und das Land teilen sich die Finanzierung des Programms. Demzufolge variieren die Zugangsberechtigungen und das Leistungsspektrum unter den Ländern.¹⁹ In den meisten Fällen erlangen Pflegebedürftige erst finanzielle Unterstützung von Medicaid, wenn sie im Jahr weniger als 14.000 Dollar zur Verfügung haben. Besitzentümer, wie zum Beispiel ein Auto, werden dabei nicht angerechnet. 40 Prozent der älteren Bevölkerung in Amerika gilt als arm. Die finanzielle Belastung für die Vereinigten Staaten ist dementsprechend hoch.²⁰

2.3.2.2 Medicare

Medicare ist staatlich organisiert und übernimmt die Kosten für Gesundheitsleistungen. Es wird nicht über Steuereinnahmen finanziert. Seit der Einführung 1966 zählt Medicare zu einer Pflichtversicherung. Diese Krankenversicherung deckt ausschließlich die Kosten für bestimmte Personen und Bereiche. Menschen ab dem 65. Lebensjahr und älter können von dem Programm profitieren. Des Weiteren haben bestimmte Personengruppen Zugang zum Medicare Programm. Bis 2010 erweiterten sich die Zugangsvoraussetzungen zum Vorteil für Menschen mit körperlichen und geistigen Einschränkungen. Die Pflichtversicherung Medicare wirkt in zwei Hauptbereichen. Der erste Bereich unterstützt Personen während einer Krankenhausbehandlung oder stationären Versorgung. Die Unterstützung beläuft sich ausschließlich auf medizinische Leistungen und nicht auf Pflege- oder Betreuungsleistungen.

¹⁷ Vgl. H. Nadolski, 2006, S. 12

¹⁸ Vgl. Dr. F. Wild, 2010, S.37

¹⁹ Vgl. Barbara S. Klees, Christian J. Wolfe, and Catherine A., 11.2011, S. 22

²⁰ Vgl. H. Nadolski, 2006, S. 12

Der zweite Bereich umfasst die ambulante Gesundheitsversorgung.²¹ Über monatliche Zuzahlungen erwerben Personen im Pflegefall finanzielle Unterstützung für medizinische Behandlungen. Die Mehrheit der Amerikaner geht die zusätzliche finanzielle Last ein. Je nach Einkommen kann der monatliche Beitrag bis zu 319,70 Dollar erreichen.²²

2.3.3 Großbritannien

Im Gegensatz zu Deutschland finanziert Großbritannien staatliche pflegerische Leistungen über Steuereinnahmen. Die Einkommensteuer stellt mit 28,7 Prozent aller Steuereinnahmen die wichtigste Einnahmequelle dar.²³ Die Einkommenssteuer ist durch Arbeitseinkommen bei Anstellung oder Selbstständigkeit, altersbedingte Renten, Zinseinnahmen und Dividenden definiert.²⁴ Diese Strategie der Finanzierung wird mit dem „Beveridge-Model“ beschrieben. Die Gesundheitsversorgung der Bevölkerung scheint damit abgedeckt.²⁵ Mit Hilfe der Steuereinnahmen wird der National Health Service (NHS) finanziert. Der NHS stellt den medizinischen Teil der Alterspflege dar. Der soziale Teil der Pflege wird von Gemeinden getragen. In Summe werden durch diese Dienste nur 64,9 Prozent der Pflegekosten durch staatlich finanzierte Dienstleister getragen. Die restlichen 35,1 Prozent werden durch die Pflegebedürftigen selbst getragen. Sozialversicherungen im eigentlichen Sinne gibt es in Großbritannien nicht. Demzufolge ist es verständlich, dass Verwandte und Angehörige den Hauptanteil der Pflege ausmachen.²⁶ In mehreren Jahren der Entwicklung des Gesundheitssystems kam in den 1990er – Jahren vermehrt die private Krankenversicherung in den Fokus. Jedoch waren Leistungsausrichtungen der Versicherer nicht auf die tatsächliche Gesundheitslage der mehrheitlichen Versicherungsnehmer abgestimmt. Des Weiteren führten zum Zweck der Kundenakquise verlockende Versicherungsangebote oft zum Zusammenbruch.²⁷ Seit dem Jahr 2013 sind Arbeitgeber verpflichtet, 3 Prozent der Löhne von Angestellten in einen Rentenfonds einzuzahlen.

²¹ Vgl. Barbara S. Klees, Christian J. Wolfe, and Catherine A., 11.2011, S. 7

²² Vgl. Barbara S. Klees, Christian J. Wolfe, and Catherine A., 11.2011, S. 13

²³ Vgl. Dr. F. Wild, 2010, S.24

²⁴ Vgl. S. Adam and J. Browne, No. 9, S. 4

²⁵ Vgl. A Rohwer, 2008, S.26

²⁶ Vgl.E. Rizzi 2007, S.40

²⁷ Vgl. U. Pasdika S. 40

Zusammen mit einem Prozent durch den Staat und einem Beitrag des Versicherten wird ein besseres Rentenniveau erreicht. Bei einem besseren Rentenniveau kann im Pflegefall der Zugang zu medizinischen und sozialen Leistungen erleichtert werden.²⁸

2.4 Wirtschaftlicher Aspekt

In diesem Abschnitt werden wirtschaftliche Zusammenhänge aus der Sicht einer Pflegeeinrichtung vereinfacht zusammengefasst. Das hilft bei späteren Ausführungen in Folgekapiteln. Eine Pflegeeinrichtung als Unternehmen setzt sich langfristig mit Märkten, Branchen und dem in Verbindung stehenden Wettbewerb auseinander.

2.4.1 Markt und Branchen

Die Pflegeeinrichtung als ein wirtschaftliches Unternehmen und weitere konkurrierende Pflegeeinrichtungen bilden einen Markt der Pflegebranche. Die Verwendungen der Begriffe „Markt“ und „Branche“ greifen oft ineinander. In einem Markt treffen „Gesamt -Angebot“ und „Gesamt-Nachfrage“ aufeinander. Das Angebot wird von allen Unternehmen einer Branche für den Markt zusammengefasst dargestellt. Die Branchen repräsentieren die Anbieterseite mit verschiedenen Angeboten. Dabei orientieren sich die Angebote am derzeitigen Bedarf und der Nachfrage auf dem Markt. Andere Märkte und Branchen nehmen auch Einfluss auf Angebot und Nachfrage. Die Variationen der Angebote in Pflegeeinrichtungen kann nicht auf die „Gesamt-Nachfrage“ eines Marktes zurückgeführt werden. Im weiten industrieökonomischem Verständnis existieren Teilmärkte und Nachfragesegmente, auf die eine Angebotsvariation zurückgeführt werden kann.

Ein Beispiel für eine Angebotsvariation ist ein Vergleich zwischen Dienstleister der Pflege auf dem Land und in der Stadt. Die Dienstleister sind Teil des Pflegemarktes, mit geteiltem Marktverständnis aufgrund unterschiedlicher Lokalisation und eventuellen Unterschieden in den Bedürfnissen der pflegebedürftigen Personen.

²⁸ Vgl. T. Meyer, 12.2013, S.23

Aus vorangegangener Thematik geht hervor, dass ein Bedarf an Pflege in Zukunft präsent bleibt und wächst. Dementsprechend gibt es viele potenzielle Marktteilnehmer der Pflegerbranche, welche einen Konkurrenten darstellen.²⁹

2.4.2 Wettbewerb

Der Wettbewerb wird in der Wirtschaft als eine wichtige Kraft angesehen. Nicht selten finden in einem Unternehmen Entscheidungen statt, welche das Ziel verfolgen, die Kaufkraft der Nachfrager für sich zu gewinnen. Konkurrenz findet unter den Unternehmen und unter den Nachfragern statt. Das konkurrierende Verhalten um Angebote zwischen den Nachfragern wird in diesem Kontext nicht näher erläutert. Zusätzlich wird auch branchenfremder Wettbewerb zwischen Unternehmen nicht weiter erläutert. Im Abschnitt „Markt und Branchen“ wird der Einfluss auf Angebot und Nachfrage durch andere Märkte und Branchen angesprochen. Der Wettbewerb steuert ebenfalls das Angebot und die Nachfrage auf dem Markt. Das individuelle Vorteilstreben der Einrichtungen und die Einbeziehung neuer Möglichkeiten der Bedürfnisbefriedigung beeinflusst die Angebotsstruktur.³⁰ Angebotsveränderungen wurden zum Beispiel mit der Neuausrichtung der Pflegebedürftigkeit deutlich. Kognitiv erkrankte Personengruppen erhalten finanzielle Unterstützung bei Betreuung und Pflege. Dementsprechend reagierten viele Pflegeeinrichtungen und erweiterten die Angebote. Ein gutes Konzept für die Betreuung demenziell erkrankter Menschen bietet von nun an eine neue Einnahmequelle. Mit Hilfe von Qualifizierungen und Zertifikaten versuchen sich Anbieter gegenüber ihrer Konkurrenz abzuheben. Der Pflegebedürftige wird durch genannte Strategien in seiner Entscheidung beeinflusst. Auch potenzielle Auszubildende oder Fachkräfte gilt es durch attraktive Angebote auf das Unternehmen aufmerksam zu machen. Kompetentes und zuverlässiges Personal ist im Vergleich zur maschinellen Industrie eine „technologisch bessere Maschine“. In einem Konkurrenzkampf unter Pflegeeinrichtungen nimmt das Personal einen wichtigen Stellenwert ein.³¹

²⁹ Vgl. W. Kortmann, S.19 - 23

³⁰ Vgl. W. Kortmann, S.106

³¹ Vgl. W. Kortmann, S.24 - 27

2.4.3 Wettbewerbsfähigkeit

Pflegeeinrichtungen gelten als wettbewerbsfähig, wenn sie trotz des Preissenkungswettbewerbs und des Qualitätsverbesserungswettbewerbs wirtschaftlich mithalten können. In der Betriebswirtschaft wird die Wettbewerbsfähigkeit über die Differenz zwischen einem realisierbaren Angebotspreis und der minimalen Durchschnittskosten bestimmt. Pflegeeinrichtungen, welche kostendeckend eigene Dienstleistungen preislich senken können ohne Verluste zu verzeichnen, gelten als wettbewerbsfähig. Unter Verlusten sind zum Beispiel Qualitätseinbußen zuzuordnen.

3. Ausgangspunkt

Ein langes und gesundes Leben wird von vielen Menschen angestrebt. Ein Vergleich von generierten Bevölkerungspyramiden des Statistischen Bundesamtes zeigt, dass in Zukunft das Erreichen eines hohen Alters zur Normalität wird. Mit dem Anstieg des Alters treten bei vielen Menschen vermehrt Erkrankungen auf. Diese führen nicht selten zur Einschränkung der Lebensqualität und im schlimmsten Fall zur Pflegebedürftigkeit.³³ Das Thema der bedürfnisgerechten, angemessenen und professionellen Versorgung im hohen Alter wird zukünftig noch präsenter werden. Aus vorangegangener Theorie lässt sich ein steigender Bedarf an pflegerischer Leistungen vermuten. Des Weiteren wird auch die Notwendigkeit von Pflegeeinrichtungen noch mehr zunehmen. Allein in Deutschland wurden innerhalb von zwei Jahren mehr als 600 neue Pflegeeinrichtungen registriert.³⁴

4. Ziel- und Fragestellung

Es gilt zu untersuchen, wie sich der demografische Prozess auf den Pflegesektor auswirkt und mit welchen Gefahren eine Pflegeeinrichtung auf dem zukünftigen Markt rechnen sollte. Es ergibt sich folgende Forschungsfrage:

„Inwieweit wird der steigende Bedarf an professioneller Pflege die Wettbewerbsfähigkeit von Pflegeeinrichtungen beeinflussen?“

³² Vgl. W. Kortmann, S. 112

³³ Vgl. RKI, Gesundheit in Deutschland, 2015, S.439 K. 9.2

³⁴ Vgl. Statistisches Bundesamt Wiesbaden, Pflegestatistik 2011/2015, S.18 u. S.21

Der Forschungsfrage wird begegnet, indem eine Zusatzfrage gebildet wird. Theoretische Vorüberlegungen zeigen, dass der professionelle Pflegebedarf mehrere Herausforderungen entstehen lässt. Die Zusatzfrage ignoriert die Komponente professionelle Pflege und geht auf allgemeine Faktoren ein. Die Zusatzfrage lautet:

„Welche Faktoren beeinflussen die Marktbeständigkeit einer Pflegeeinrichtung?“

Mit der detaillierten Ermittlung wirtschaftlich gefährdender Faktoren kann der Effekt des professionellen Pflegebedarfs auf Pflegeeinrichtungen genauer erörtert werden. Es erschließen sich Herausforderungen für die Wettbewerbsfähigkeit von Pflegeeinrichtungen.

5. Methodik

Für die Bearbeitung der Fragestellung ist es notwendig, geeignete Literatur, Datenerhebungen und Untersuchungen in Form von Studien zu recherchieren. Diese Arbeit basiert auf bereits publizierter Literatur, mit deren Hilfe zukünftige Herausforderungen für die Pflege beleuchtet werden. Im Laufe der Methodik werden die Suchstrategien für geeignete und wissenschaftliche Studien dargelegt.

5.1 Suchstrategie Zusatzfrage

Für die Bearbeitung der Zusatzfrage ist die Suche nach Publikationen erstrebenswert, welche die Marktbeständigkeit von Pflegeeinrichtungen untersuchen. Die Untersuchungen sollen dabei verstärkt auf Faktoren eingehen, die den laufenden Betrieb einer Pflegeeinrichtung beeinflussen. Aus Überlegungen geht hervor, dass ein negativer Einfluss auf die Marktbeständigkeit im schlimmsten Fall zur Schließung der Einrichtung führen könnte. Auf beispielhafte Fragen wie „Warum musste die Einrichtung schließen?“ oder „Mit welchen Problemen hat sich eine Pflegeeinrichtung auseinandergesetzt, bevor es zur Schließung kam?“ könnten Untersuchungen folgen, welche schwerwiegende Risikofaktoren für Pflegeeinrichtungen und deren Beständigkeit ergeben.

5.1.1 Datenbankrecherche

In diesem Abschnitt werden ausgewählte Datenbanken nach relevanten Publikationen und Studien durchsucht. Die Fachbereiche Medizin, Wirtschaftswissenschaften und Sozialwissenschaften sind für die Recherche bedeutsam. Aufgrund bestimmter Fachbereiche und Zugangsvoraussetzungen sind folgende Datenbanken für die Suche relevant:

DBIS WHZ³⁵, SCOPUS³⁶, WISO³⁷, Springer³⁸ und PubMed³⁹

Für die Recherche in den oben genannten Datenbanken werden die Begriffe „Gesundheitsmarkt“, „Schließung“ und „Pflegeheim“ zusätzlich in „Health Marketing Service“, „Closure“ und „Nursing Home“ übersetzt. Die englischsprachige Datenbank PubMed ist hierfür die Hauptquelle und ermöglicht zudem eine internationale Reichweite. Anschließend wird nach Treffern für einzelne Suchbegriffe gesucht. Fehlerhafte Übersetzungen und Treffer können somit dem Suchbegriff direkt zugeordnet werden.

Jeder Begriff wird zunächst in allen Feldern gesucht, bevor er als Schlagwort in Textform ermittelt wird. Verzeichnen Begriffe bei der Schlagwortsuche Treffer, werden in weiteren Schritten ausschließlich Begriffe als Schlagwörter verwendet. Die folgende Tabelle 2 zeigt Trefferzahlen aller Suchvorgänge in den ausgewählten Datenbanken.

Tabelle 2: Übersicht Forschungsinteresse

Suchbegriff	Pubmed	SCOPUS	DBIS WHZ	Springer	WISO
Gesundheits-Markt (frei)	18884	106	-	1764	80
Schließung (frei)	85884	618	-	21055	Nicht untersucht

³⁵Vgl. DBIS WHZ, http://dbis.uni-regensburg.de//fachliste.php?bib_id=whz&lett=l&colors=&ocolors=

³⁶Vgl. SCOPUS, <https://www.scopus.com/home.uri>

³⁷Vgl. WISO, <https://www.wiso-net.de/login?targetUrl=%2Fdosearch>

³⁸Vgl. Springer, <https://link.springer.com/>

³⁹Vgl. PubMed, <https://www.ncbi.nlm.nih.gov/pubmed/>

Pflegeheim (frei)	75767	454	-	4506	26943
Gesundheits- Markt (Schlag- wort)	16399	-	-	-	-
Schließung (Schlagwort)	-	-	-	-	6667
Pflegeheim (Schlagwort)	33791	3	-	-	4221
Gesundheits- Markt + Pfle- geheim	3	-	-	43	1
Pflegeheim + Schließung	8	-	-	-	5

Die Tabelle 2 zeigt Trefferzahlen zu verschiedenen Suchbegriffen und Suchkombinationen. Der Zusatz „FREI“ steht für einen frei im Text ermittelten Suchbegriff. Der Zusatz „SCHLAGWORT“ geht bei der Suche auf Titel und Thema ein. Schlagwörter werden meist in Publikationen hinterlegt und dienen der Einordnung von Forschungsthemen.

Die Datenbank des Wissenschaftsverlages Springer und die Datenbank für Hochschulen WISO listen Literatur und Zeitungsberichte auf, welche den Charakter einer wissenschaftlichen Untersuchung nicht gerecht werden. Dessen ungeachtet wirkt die Literatur bereichernd für den theoretischen Rahmen. Die Datenbankrecherche im PubMed wird unter zusätzlichen Kriterien durchgeführt.

³⁵Vgl. DBIS WHZ, http://dbis.uni-regensburg.de//fachliste.php?bib_id=whz&lett=l&colors=&ocolors=

³⁶Vgl. SCOPUS, <https://www.scopus.com/home.uri>

³⁷Vgl. WISO, <https://www.wiso-net.de/login?targetUrl=%2Fdosearch>

³⁸Vgl. Springer, <https://link.springer.com/>

³⁹Vgl. PubMed, <https://www.ncbi.nlm.nih.gov/pubmed/>

5.1.2 PubMed

Die erste Suchkombination besteht aus den Schlagwörtern „health marketing service“ und „nursing home“. In der zweiten Suchkombination wird das Schlagwort „nursing home“ und als freies Wort „closure“ verwendet. Die Kombinationen ergeben 182 und 90 Treffer, die anschließend durch die Aktivierung von Filtern eingegrenzt werden. Verwendete Filter sind „free full text“ und „last 10 years“. Gründe dafür sind Zugangsrechte und mangelndes Budget. Die Zeitraumwahl von zehn Jahren ist durch die Einführung der Pflegeversicherung in Deutschland am 1. Januar 1995 begründet.⁴⁰ Die Publikationen aus Zeiten vor 1995 oder Publikationen wenige Jahre nach der Einführung der Pflegeversicherung könnten für die Untersuchung der Thematik nur wenige Fälle zur Verfügung haben.

Die Suchstrategien beider Kombinationen filtern in Summe 11 Studien heraus. Aufgrund einer Doppelung sind es effektiv 10 Studien bei denen der Inhalt untersucht wird. Im Fokus für die Bearbeitung der Bachelorarbeit stehen 4 Studien.

Studie I von Stephen Allan und Julien Forder:

„The Determinants of care home closure“

Studie II von Nicholas G. Castle, John Engberg, Judith Lave, und Andrew Fisher:

„Factors Associated with Increasing Nursing Home Closures“.

Die nächsten zwei Studien untersuchen weitere Zusammenhänge von Schließungen genauer und bilden eine gute Ergänzung zu Erhebungen der Studie I und Studie II.

Studie III von Dr. Zhanlian Feng, PhD, Dr. Michael Lepore, PhD, Dr. Melissa A. Clark, PhD, Dr. Denise Tyler, PhD, Dr. David B. Smith, PhD, Dr. Vincent Mor, PhD, und Dr. Mary L. Fennell, PhD:

„Geographic Concentration and Correlates of Nursing Home Closures: 1999–2008“

Studie IV von Yue Li, Charlene Harrington, William D. Spector, und Dana B. Mukamel:

„State Regulatory Enforcement and Nursing Home Termination from the Medicare and Medicaid Programs“

⁴⁰Bundesgesundheitsministerium, <https://www.bundesgesundheitsministerium.de/themen/pflege/online-ratgeber-pflege/die-pflegeversicherung.html>

5.2 Methodenkritik

Die Methodenkritik erfolgt im Zusammenhang mit der Methodik und nicht in der Diskussion. Ausschlaggebend für diese Entscheidung ist das Einhalten einer verständlichen Struktur für den Leser. Die Methodik und die Methodenkritik beschreiben und kritisieren in dieser Bachelorarbeit das Recherchieren nach Studien. Das Ergebnis für diese Methodik sind die ausgewählten Studien. (Studie I - IV)

Die Methodik beschreibt im Großen und Ganzen die Literaturrecherche für die Zusatzfrage:

„Welche Faktoren beeinflussen die Marktbeständigkeit einer Pflegeeinrichtung?“

Dabei werden nur fünf Datenbanken verwendet. Gründe dafür sind Zugangsberechtigungen und mangelndes Budget. Auf eine detaillierte Literaturrecherche für die tatsächliche Forschungsfrage der Bachelorarbeit wird verzichtet, da die Forschungsfrage in ihrer Formulierung zu viele Bereiche bedient. Die Zusatzfrage greift wie ein Zahnrad in die Forschungsfrage ein und hilft bei der Bearbeitung der Thematik: „Wettbewerbsfähigkeit der Pflegeeinrichtungen“.

Es existiert ein Forschungsinteresse im Bereich der Heimschließung, jedoch beziehen sich Untersuchungen ausschließlich auf England oder auf die Vereinigten Staaten. In späteren Erläuterungen müssen auf länderspezifische Faktoren hingewiesen werden.

Literatur und Studien für die Thematik rundum „professionelle Pflege“ finden sich ausreichend. Wichtig für diesen Teil der Forschungsfrage ist das Verständnis von Theorie gepaart mit Statistiken öffentlicher Erhebungen.

Im Schlussteil der Arbeit erfolgt die Zusammensetzung der Themen. Diese Zusammensetzung wird auf bereits publizierten Erhebungen und Literatur erstellt. Die Fragestellung der Bachelorarbeit impliziert eine zukunftsorientierte Beantwortung oder Stellungnahme und entspricht im gewissen Maße einer Prognose. Eine Prognose gestützt durch Datenerhebungen aus mehreren Jahren.

6. Erhebungsstrategien und Ergebnisse

Die Ausarbeitungen wichtiger Erhebungsvorgänge und Daten aus recherchierten Studien stellen in diesem Kontext die Ergebnisse dar.

6.1 Erhebungsstrategie Studie I

Die Autoren Stephan Allan und Julien Forder untersuchen in der Studie die Annahme, dass minderwertige Pflegeeinrichtungen eher vom Markt verschwinden als höherwertige Pflegeeinrichtungen. Sie sind der Meinung, dass hauptsächlich die Qualität das Risiko einer Schließung bestimmt. Die Qualität steht bei den Untersuchungen von Stephan Allan und Julien Forder unter verschiedenen Einflüssen. Infolgedessen erschließen sich zwei Situationen. In der ersten Situation kommt es bei Pflegeeinrichtungen mit niedriger Qualität zu vermehrten Problemen, welche das Risiko einer Schließung erhöhen. Die zweite Situation beschreibt eine schwache wirtschaftliche Standfestigkeit von Pflegeeinrichtungen mit niedriger Qualität. Die Pflegeeinrichtungen mit niedriger Qualität stehen im Vergleich zu Pflegeheimen in unmittelbarer Konkurrenz. Die Untersuchungen basieren auf Daten von registrierten Pflegeheimen in der „Care Quality Commission“ (CQC) 2008 und 2012.⁴¹ Diese Datenauszüge können unterschiedlich klassifiziert werden. Es wird dabei unterteilt in Pflegeeinrichtungen mit registrierten Pflegefachkräften und in Pflegeeinrichtungen ohne registrierte Pflegefachkräfte. Ergänzend wird eine bestimmte Patientenorientierung gewählt, wie zum Beispiel die Ausrichtung auf dementiell erkrankte Menschen oder hochbetagte Pflegebedürftige. Des Weiteren wird in private und öffentliche organisierte Pflegeeinrichtungen unterschieden. Alle Pflegeeinrichtungen, welche im Verlauf der Datenauszüge von 2008 bis 2012 nicht mehr registriert sind, gelten als geschlossen. Für die Untersuchung der Zusammenhänge zwischen Qualität, Konkurrenz und Schließung werden bestimmte Pflegeeinrichtungen untersucht. Diese sind privat, unabhängig und hauptsächlich ausgerichtet auf ältere und dementiell erkrankte Menschen.

⁴¹ Vgl. CQC -<http://www.cqc.org.uk/about-us>

6.2 Ergebnisse Studie I

Mit den beschriebenen Kriterien in Kapitel 6.1 werden 9324 Pflegeeinrichtungen im Jahr 2008 ermittelt. 320 Pflegeeinrichtungen welche 2008 eröffnet haben, schlossen 2010. Von 9330 registrierten Pflegeeinrichtungen 2010 schlossen 302 ausführende Pflegeeinrichtungen in Jahr 2012. (Vgl. ANHANG 1, S.137) Es werden für weitere und detailliertere Untersuchungen Zeiträume von 2008 bis 2010 und 2010 bis 2012 gewählt.

Die Qualität von Pflegeeinrichtungen wird durch die Sterne – Rating – Skala der „Care Quality Commission“ festgemacht. Die Unternehmenskonzentration wird über den Herfindahl – Hirschman Indexes (HHI) ermittelt. In den Untersuchungen von Stephan Allan und Julien Forder wird die Unternehmenskonzentration in einem Umkreis von 20 Kilometern um eine Pflegeeinrichtung ermittelt. Das Level der Signifikanz liegt bei 5 Prozent. Demzufolge muss das Signifikanzniveau für Qualität und Konkurrenz unter 0,05 liegen, damit ein wahrscheinlicher Zusammenhang zur Schließung vorliegt.

Untersuchungen im Hinblick auf die Qualität haben ergeben, dass Pflegeeinrichtungen mit niedriger Qualität tendenziell eher schlossen als qualitativ hochwertigere Einrichtungen. Dementsprechend ist ein Zusammenhang von Qualität und dem Risiko der Schließung möglich. Im gleichen Maße lässt sich der Wettbewerb oder die Konkurrenz beschreiben. In verschiedenen Intervallen wird jedoch ersichtlich, dass bei Qualität und Konkurrenz das Signifikanzniveau von 0,05 mehrfach überschritten wird. Aufgrund von unzureichenden Daten und möglichen Verzerrungen erschließt sich eine Wahrscheinlichkeitsspanne von 90 Prozent bis 99 Prozent. (Vgl. ANHANG 1, S.139-142)

6.3 Erhebungsstrategie Studie II

Die Autoren Nicholas G. Castle, John Engberg, Judith Lave, und Andrew Fisher vertreten die Meinung, dass alternative Langzeitpflege zukünftig einen hohen Einfluss auf die Beständigkeit der Pflegeeinrichtungen hat. Vor allem Pflegeeinrichtungen, welche nur auf vollstationäre Pflege ausgerichtet sind, sollen es schwer auf dem Markt haben. Weitere Hypothesen repräsentieren die Vorüberlegungen und das folgende Untersuchungsvorhaben. Die Hypothesen beinhalten unabhängige und abhängige Variablen. Alle unabhängigen Variablen werden für die Veranschaulichung markiert.

„Hypothese 1: Heime in Verbindung mit Krankenhäusern schließen im Gegensatz zu freien unabhängigen Heimen eher.“

„Hypothese 2a: Heime mit hoher Patientenbelegung, welche Unterstützung von Medicaid bekommen, schließen eher als Heime mit niedriger Patientenbelegung.“

„Hypothese 2b: Heime mit geringer Kostenrückerstattung durch Medicaid schließen im Gegensatz zu Heimen mit hoher Kostenrückerstattung durch Medicaid eher.“

„Hypothese 2c: Heime sowohl mit hoher Medicaid Belegung und geringer Kostenrückerstattung durch Medicaid schließen im Gegensatz zu Heimen die nur einen der genannten Faktoren aufweisen eher.“

„Hypothese 3a: Heime mit geringer Qualität schließen eher als Heime mit hoher Qualität.“

„Hypothese 3b: Heime mit geringer Qualität haben ein steigendes Risiko mit der Zeit zu schließen im Gegensatz zu Heimen mit hoher Qualität.“

„Hypothese 4a: Heime in einer größeren Unternehmenskonzentration schließen eher als Heime in einer geringeren Unternehmenskonzentration.“

„Hypothese 4b: Heime in einer größeren Unternehmenskonzentration weisen ein stärkeres Risiko über Zeit zu schließen als Heime in einer geringeren Unternehmenskonzentration.“

„Hypothese 5a: Heime mit geringen Belegungsraten schließen im Gegensatz zu Heimen mit hohen Belegungsraten eher.“

„Hypothese 5b: Heime mit geringen Belegungsraten weisen mit der Zeit ein steigendes Risiko für eine Schließung auf als Heime mit hohen Belegungsraten.“ (Vgl. ANHANG 2, 1092- 1094)

Die Untersuchung stützt sich auf Daten aus dem Zeitraum von 1999 bis 2005. Öffentliche Behörden aus 50 Bundesstaaten der Vereinigten Staaten ermöglichen einen Datenzugang. Diese Datensätze werden mit Ergebnissen aus Berichterstattungen und Umfragen vereint, damit der Pflegeeinrichtung eine derzeitige interne und externe Situation zugeordnet werden kann. Die Situationen sind unter anderem die Marktsituation und die interne, organisatorische Situation.

Jene Situationen werden als unabhängige Variablen dargestellt. Die eigentliche abhängige Variable und somit die notwendige Variable für die Untersuchung ist die Schließung. (Vgl. ANHANG 2, S.1096 Tabelle 1) In welchen Ausmaß die unabhängigen Variablen an einer Schließung beteiligt sind, wird mit Hilfe von statistischen Erhebungen und Vergleichen ermittelt. Verglichen werden alle unabhängigen Variablen bei geschlossenen und nicht geschlossen Pflegeeinrichtungen.

6.4 Ergebnisse Studie II

Aus einer deskriptiven Statistik, die ausschließlich Kennzahlen unabhängiger Variablen in geschlossenen und nicht geschlossenen Pflegeeinrichtungen ermittelt, hat sich Folgendes ergeben. (Vgl. ANHANG 2, S.1096 Tabelle 2)

Geschlossene Pflegeeinrichtungen in den Vereinigten Staaten sind/haben...

- kleiner
- weniger belegt (niedrige Belegungsraten)
- mit einem Krankenhaus verbunden
- stark mit Bewohnern aus dem Medicaid – Programm belegt
- geringe Rückzahlungsraten durch Medicaid
- besser mit lizenzierten Pflegekräften ausgestattet
- qualifizierter in der Pflegedokumentation

Eine weitere Statistik gibt Kennzahlen über Quotenverhältnisse an. Das so genannte Odds Ratio Verfahren wird benutzt, um über die Verbindungsstärke bestimmter Variablen eine Aussage treffen zu können. Das Level der Signifikanz liegt bei 5 Prozent. Demzufolge muss eine Hypothese mindestens zu 95 Prozent wahrscheinlich sein, damit sie als bedeutsam gilt. (ANHANG 2, S.1101 Tabelle 4)

Es ist statistisch wahrscheinlich, dass

- aufgrund der Anzahl von Betten kleine Pflegeeinrichtungen eher schließen
- neue Pflegeeinrichtungen eher schließen
- Pflegeeinrichtungen mit qualifizierter Pflegedokumentation auf lange Sicht eher von Schließungen betroffen sind
- eine große Bettenauslastung auf lange Sicht nicht zu einer Schließung führt
- eine Krankenhauszugehörigkeit in Verbindung mit einer Schließung steht
- Pflegeeinrichtungen, die in Verbindung zu Krankenhäusern stehen eher schließen als freie unabhängige Pflegeeinrichtungen
- Pflegeeinrichtungen, die in Verbindung zu Krankenhäusern stehen zwei Mal so oft schließen im Gegensatz zu freien unabhängige Pflegeeinrichtungen
- Konkurrenz in Verbindung zu Schließungen steht
- Konkurrenz im längeren Zeitraum betrachtet nicht das Risiko einer Schließung verstärkt.
- hohe Rückzahlungsraten von Medicaid oft in Verbindung stehen mit weniger Schließungen
- Belegungen durch Pflegebedürftige aus dem Medicaid-Programm zunehmen. Dieses Phänomen aber zunehmend in Pflegeeinrichtungen auftaucht, bei denen die Kostenrückerstattungen durch Medicaid gering ausfallen. (Vgl. ANHANG 2, S.1102)

6.5 Erhebungsstrategie Studie III

Die Autoren Dr. Zhanlian Feng, PhD, Dr. Michael Lepore, PhD, Dr. Melissa A. Clark, PhD, Dr. Denise Tyler, PhD, Dr. David B. Smith, PhD, Dr. Vincent Mor, PhD, und Dr. Mary L. Fennell, PhD machen für diese Studie Gebrauch von dem „Online Survey Certification and Reporting“ Datensystem (OSCAR). Das Datensystem enthält Informationen über Pflegeeinrichtungen und deren Qualität, Personalausstattung, Träger und Pflegebedürftige. Es sind nur Pflegeeinrichtungen gelistet, welche die Genehmigung haben Leistungen über Medicare und Medicaid abzurechnen. In dieser Erhebungsstrategie zählen Pflegeeinrichtungen, die nicht mehr berechtigt sind über Medicare und Medicaid abzurechnen, als geschlossen. Die Untersuchungsperiode wird von 1999 bis 2008 festgelegt.

6.6 Ergebnisse Studie III

In allen 50 Vereinigten Staaten und im District von Columbia sind 18.259 Pflegeeinrichtungen über das OSCAR auslesbar. 15.998 sind freie und unabhängige Einrichtungen und 2.261 stehen mit Krankenhäusern in Verbindung. Im ländlichen Gebiet finden sich 5.624 Pflegeeinrichtungen. Die Städte haben mit 12.635 mehr als das Doppelte an Pflegeeinrichtungen. Das Untersuchungsintervall von 1999 bis 2008 verzeichnet 2.909 geschlossene Pflegeeinrichtungen. Die prozentuale Aufteilung der Schließungsraten zwischen Pflegeeinrichtungen in Verbindung zum Krankenhaus und freien Pflegeeinrichtungen beläuft sich auf 50 Prozent zu 11 Prozent. Städtische Pflegeeinrichtungen in Verbindung mit Krankenhäusern haben die höchste Rate von Schließungen. Diese liegt bei 60 Prozent. Freie Pflegeeinrichtungen schließen auf dem Land und in der Stadt mit Raten von 10 Prozent und 11 Prozent. (Vgl. ANHANG 3, S. 4) Die folgende Abbildung aus Studie III, Seite 11, zeigt die prozentualen Raten der Schließungen in den einzelnen Bundesstaaten.

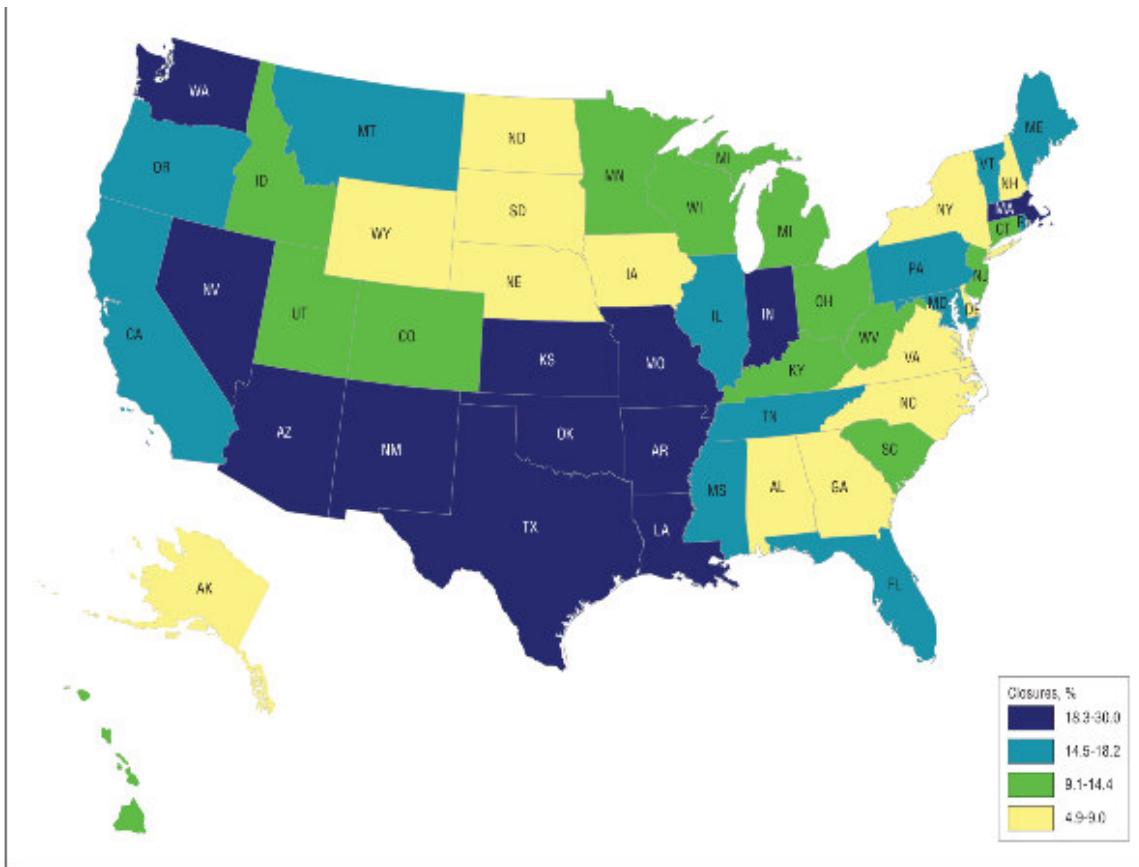


Abb. 1: Cumulative rate of nursing home closures by state, 1999 through 2008

6.7 Erhebungsstrategie Studie IV

Die Autoren Yue Li, Charlene Harrington, William D. Spector, and Dana B. Mukamel untersuchen in der Studie den Zusammenhang von Qualitäts- und Sicherheitsstandards in Pflegeeinrichtungen und den Austritt aus Medicaid und Medicare. Untersuchungsgegenstand sind lizenzierte Pflegeeinrichtungen für die staatlich organisierten Programme Medicare und Medicaid. Alle Daten stammen aus Umfragen über den Lizenzstatus einer Pflegeeinrichtung und aus Zusammenarbeit mit zertifizierten Agenturen.

6.8 Ergebnisse Studie IV

In dem Jahr 2006 bis 2007 fand bei 2,16 Prozent der lizenzierten Pflegeeinrichtungen ein geplanter Austritt aus Medicare und Medicaid Programmen statt. Ungeplante Schließungen sind eher die Ausnahme. (ANHANG 4, S. 1798 – 1799 Tabelle 1)

Mit einem Signifikanzniveau von 0,05 sind freiwillig austretende Pflegeheime...

- kleiner
- haben eine geringere Belegungsrate
- mit einem Krankenhaus verknüpft
- in einem Markt mit hohem Wettbewerb lokalisiert
- in einem Bundesstaat mit geringer Rückerstattungsquote durch Medicaid und Medicare

Durch das Odds Ratio wird der Zusammenhang zwischen Qualitätsstandards und Schließung verdeutlicht. Durch die Untersuchungen kam raus, dass Pflegeeinrichtungen in Bundesstaaten mit hohen qualitativen Standards und Vorgaben für Medicaid und Medicare öfter aus Programmen austreten.

7. Diskussion

In der Diskussion erfolgen das Bewerten und Vergleichen der Studienergebnisse mit den Sachverhalten aus dem theoretischen Hintergrund. Die Diskussionsgrundlage sind die Ergebnisstrategien und die Ergebnisse der Studien I bis IV.

7.1 Studie I

Die Studie I von Stephan Allan und Julien Forder arbeitet mit Daten der CQC Großbritanniens. Im Fokus der Erhebungen stehen unabhängige Pflegeeinrichtungen, die hauptsächlich ältere und dementiell erkrankte Menschen pflegen. (Vgl. ANHANG 1, S. 137) Taucht ein Pflegeheim in dem CQC nicht mehr auf gilt es als geschlossen. Zum Beispiel wird ein möglicher Trägerwechsel einer Pflegeeinrichtung fälschlicherweise als Schließung eingestuft. Nicht zu klären ist, ob unabhängige Pflegeeinrichtungen die keiner Pflegekette angehören eher ersetzt oder geschlossen werden.

In den Ergebnissen aus Kapitel 6.2 liegt bei Erhebungen unter dem Qualitäts- und Konkurrenzfaktor eine Überschreitung des festgelegten Signifikanzniveaus vor. Die Wahrscheinlichkeit, dass mangelnde Qualität oder starke Konkurrenz die Beständigkeit einer Pflegeeinrichtung negativ beeinflussen liegt des Öfteren unter 95 Prozent. Dennoch liegen die Erhebungen in einer akzeptablen Wahrscheinlichkeitsspanne von 90 Prozent bis 99 Prozent. (Vgl. ANHANG 1, S.141-142) Neben Erhebungen qualitativer Zusammenhänge werden vereinzelt auch Fälle ersichtlich, die eine Schließung des Pflegeheimes nach einer Qualitätskontrolle zeigen. Diese Erkenntnis wird nur beiläufig erwähnt und taucht nicht explizit in einer Statistik auf. Ungeachtet dessen ist ein Risiko der Schließung bei niedriger Qualität höher. Es wird deutlich wie wichtig das Einhalten von Qualitätsstandards ist. Eine niedrige Qualität kann mit einer Schließung nicht 100 Prozent in Verbindung gesetzt werden. Dennoch belegen Ergebnisse den Zusammenhang von niedriger Qualität und Pflegeheimschließung. (Vgl. ANHANG 1, S. 143) Die Erkenntnisse müssen Pflegeheimen den Anstoß geben, Qualität zu beobachten und gegebenenfalls anzupassen. Es wird davon ausgegangen, dass der Qualitätsverbesserungswettbewerb die Anpassung der Qualität bedingt steuert. Bei einer 64,9 prozentigen Vergütung der Leistungen bleibt nicht viel Spielraum für außerordentliche qualitative Verbesserungen.⁴²

⁴²Vgl. w. Kortmann, S.112 u. E. Rizzi, S.40

7.2 Studie II

Die Autoren Nicholas G. Castle, John Engberg, Judith Lave, und Andrew Fisher bestätigen mit den Untersuchungen die schwierige wirtschaftliche Lage von Pflegeeinrichtungen in den Vereinigten Staaten. Eine große Zahl verschiedener Faktoren die das Risiko einer Schließung erhöhen können, stehen im Fokus weiterer Erläuterungen. Betrachtet man bestimmte externe und interne Faktoren separat, sind die Mehrzahl geschlossener Pflegeeinrichtungen kleiner, weniger belegt, mit einem Krankenhaus verbunden, stark mit Bewohnern aus dem Medicaid – Programm belegt, schlechter durch Medicaid unterstützt, besser mit lizenzierten Pflegekräften ausgestattet und qualifizierter in der Pflegedokumentation. (ANHANG 2, S.1096 Tabelle 2)

Diese Untersuchungsergebnisse werfen die Frage auf, warum Pflegeeinrichtungen Pflegebedürftige aufnehmen, obwohl die Finanzierung durch Medicaid auf lange Sicht problematisch wird.

Das Medicare Programm spielt eine zusätzliche Rolle. Nach einer Krankenhausbehandlung wird angenommen, dass Pflegebedürftige in die naheliegende Pflegeeinrichtung übergeleitet werden. Meist steht diese Pflegeeinrichtung in Verbindung mit dem Krankenhaus. Medicare erstattet für einen gewissen Zeitraum nach dem Krankenhausaufenthalt Kosten für die medizinische Versorgung. Die Kosten für Pflegebedürftige mit höherem Versorgungsgrad stellen nach Ablauf der Finanzierung durch Medicare ein Problem dar.⁴³ Zumal viele pflegebedürftige Personen finanziell schlecht gestellt sind und Behandlungskosten nicht selbst getragen oder aufgebracht werden können. Programme wie Medicaid und Medicare sind für diese Menschen unabdingbar und viele Pflegeeinrichtungen folgen der Entwicklung, indem sie sich für Programme zusätzlich lizenzieren.⁴⁴

Untersuchungen von Variablen und deren Wirkung untereinander zeigen, dass Pflegeeinrichtungen mit qualifizierteren und lizenzierten Personal eher schließen. (Vgl. ANHANG 2, S.1101 Tabelle 4)

⁴³Vgl. Barbara S. Klees, Christian J. Wolfe, and Catherine A., 11.2011, S. 7

⁴⁴Vgl. H. Nadolski, 2006, S. 12

Nimmt man an, dass die Qualität durch qualifiziertes und lizenziertes Personal positiv beeinflusst wird, stellt sich die Frage; warum diese Pflegeeinrichtungen tendenziell eher schließen?

Die Finanzierung nimmt bei der Beantwortung dieser Problemstellung eine wichtige Rolle ein. Vergleicht man dieses Phänomen mit den theoretischen Vorüberlegungen aus dem wirtschaftlichen Teil, sind viele Pflegeeinrichtungen nicht in der Lage, mit dem herrschenden Preisniveau die Qualität zu halten. Pflegebedürftige werden in großer Zahl betreut, die auf Unterstützung durch Medicaid angewiesen sind. Leistungsvergütungen gegenüber der Medicaid folgen zusätzlichen Standards. Qualitätsstandards in Pflege und Dokumentation sind mit Kosten verbunden. Qualifizierte Pflegekräfte sind vorhanden, können aber durch Medicaid nicht ausreichend vergütet werden. Ebenso führt eine geringfügige Leistungsberechnung auf lange Sicht zu Komplikationen. Komplikationen, die sich auf eine wirtschaftliche Beständigkeit auswirken können. Dieser Umstand führt zur Annahme, dass Auflagen von Medicaid Programmen auf dem Pflegemarkt nur mangelhaft realisierbar sind.

Die Entwicklung zeigt, dass Belegungen durch pflegebedürftige aus dem Medicaid-Programm zunehmen. Dieses Phänomen taucht aber zunehmend in Pflegeeinrichtungen auf, die ohnehin unter geringen Kostenrückerstattungen durch Medicaid leiden. (Vgl. ANHANG 2, S.1102) Finanzielle Engpässe sind durch diesen Trend vorprogrammiert.

Wieso sind überwiegend rein stationär pflegende Einrichtungen eher von Schließungen betroffen?

Für pflegebedürftige Personen werden Pflegekosten zunehmend unbezahlbar. Die ambulante Pflege mit der Unterstützung Angehöriger ist für die Mehrheit der Betroffenen tragbar.⁴⁵ Die vermehrte Inanspruchnahme alternativer Pflege kann mit der Zeit das Risiko für Schließungen von rein stationären Pflegeeinrichtungen erhöhen. Die Konkurrenz zu anderen Pflegeeinrichtungen stand im Erhebungszeitraum mit Schließungen in Verbindung und verstärkt den existentiellen Druck auf rein stationäre Pflegeeinrichtungen.

⁴⁵Vgl. H. Nadolski, 2006, S. 12

7.3 Studie III

Die Autoren Dr. Zhanlian Feng, PhD, Dr. Michael Lepore, PhD, Dr. Melissa A. Clark, PhD, Dr. Denise Tyler, PhD, Dr. David B. Smith, PhD, Dr. Vincent Mor, PhD, und Dr. Mary L. Fennell, PhD verfügen nur über Daten von Pflegeheime, welche lizenziert sind und Leistungen über Medicaid und Medicare geltend machen können. Ausschließlich privat finanzierte Pflegeeinrichtungen tauchen in den Erhebungen nicht auf. Für die Überlegungen ist festzuhalten, dass Pflegeeinrichtungen mit dem Verlust einer Lizenz für Medicaid und Medicare als geschlossen zählen.

In Bezug auf unabhängige Heime und Heimen in Verbindung mit Krankenhäusern weist die Studie nahezu identische Zusammenhänge auf, wie in Kapitel 7.2 beschrieben wird. Demzufolge sind Pflegeeinrichtungen in Verbindung zu Krankenhäusern eher von einer Schließung betroffen.

Der Fokus der Studie III liegt auf der geographischen Verteilung von Schließungen. Die Abbildung 1 (Cumulative rate of nursing home closures by state, 1999 through 2008, S.23) zeigt die prozentualen Raten der in den 50 Bundesstaaten geschlossenen Pflegeeinrichtungen für das Intervall 1999 bis 2008. Texas, Arizona oder New Mexiko zählen zu den Staaten, bei denen es vermehrt zu Schließungen kam.

Die folgenden Abbildungen 2 und 3 helfen bei der Erläuterung von Zusammenhängen. Dabei ist zu erwähnen, dass die Abbildungen 2 und 3 aus dem Jahr 2017 stammen. Der wirtschaftliche Zustand der einzelnen Bundesstaaten und Regionen wird dargestellt. Es gibt viele Regionen die von einem wirtschaftlichen Notstand betroffen sind. Texa, Arizonaaa und New Mexiko stehen an der Schwelle zum Notstand. In wirtschaftlich schwachen Gebieten leben vermehrt finanziell schwache Menschen. Wie Erhebungen aus Studie II und theoretische Vorüberlegungen zeigen, sind finanziell schlecht gestellte Pflegebedürftige auf Medicare und Medicaid angewiesen. Eine Verbindung von finanziell schwachen Pflegebedürftigen in einer Region und die Schließung von Pflegeeinrichtungen scheint logisch. (Vgl. ANHANG 2, S.1102 u. H. Nadolski, 2006, S.12)

Abbildung 2 zeigt die Unterteilung aller Regionen der Vereinigten Staaten von „wohlhabend“ (prosperous) bis „finanziell schwach“ (distressed).

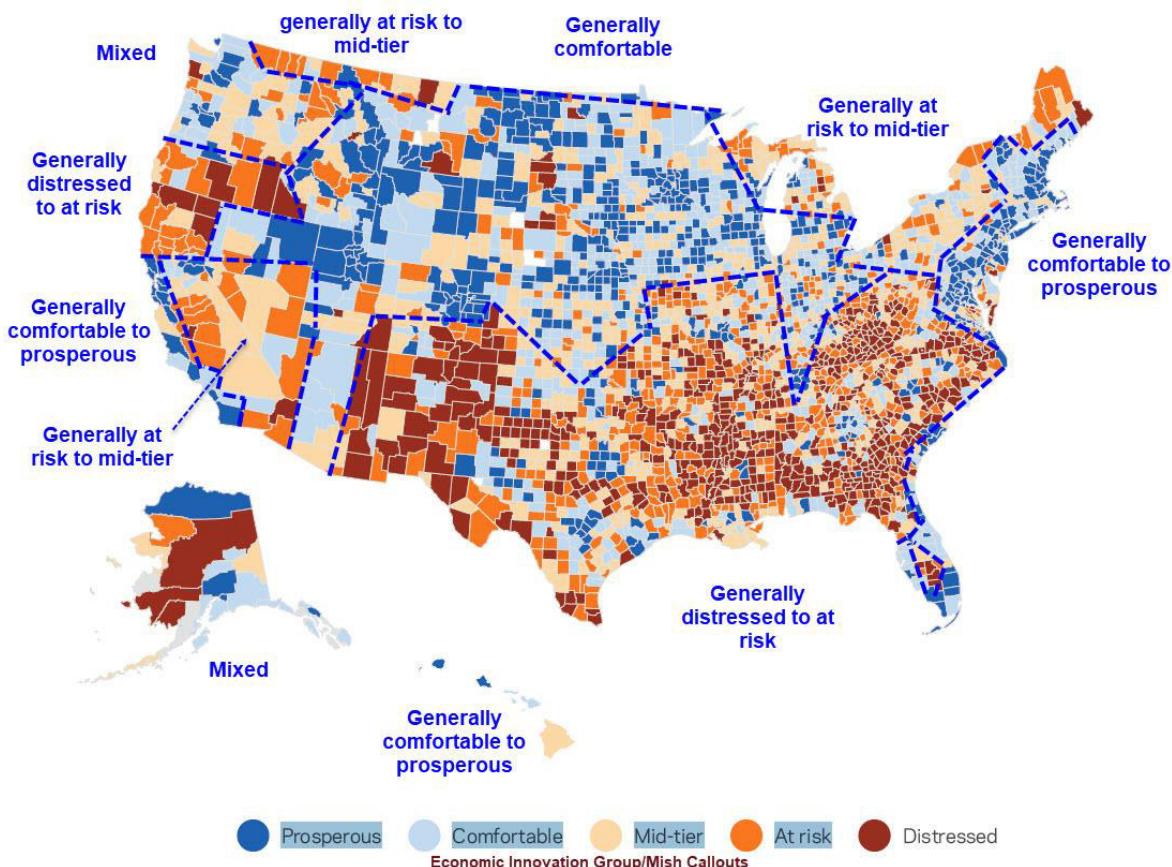


Abb. 2: Economic Innovation Group/Mish Callouts (Marco Meier –Contra Magazin)⁴⁶

Im Vergleich zu Kapitel 6.1 mit der Abbildung 1 schließen vermehrt Pflegeeinrichtungen in finanziell schwächeren Regionen. Südliche Länder trifft es am stärksten.

Abbildung 3 zeigt den Grad des wirtschaftlichen Notstandes einzelner Bundesstaaten. Der wirtschaftliche Notstand setzt sich aus bestimmten Faktoren zusammen. Die Armutsrat, geringfügige Schulabschlüsse, Arbeitslosigkeit und leerstehende Häuser sind Beispiele mit der ein wirtschaftlicher Notstand gedeutet werden kann,

⁴⁶Vgl. Marco Maier, <https://www.contra-magazin.com/2017/09/usa-grosse-gebiete-des-landes-sind-wirtschaftlich-kaputt/>

4. Percent of state population living in distressed zip codes

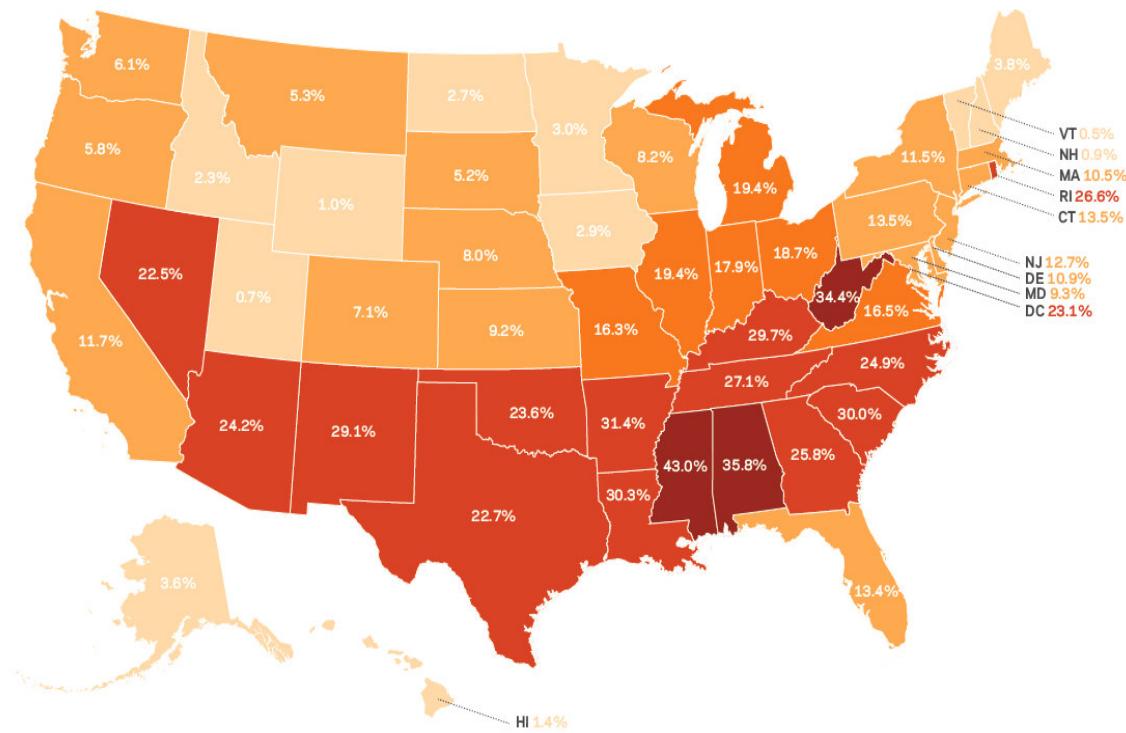


Abb. 3: Percent of State Population living in distressed Zip Codes (Marco Meier –Contra Magazin)⁴⁷

Die Abbildung 3 verstrtzt den Zusammenhang von wirtschaftlicher Notlage des Staates und der Schlieung der Pflegeeinrichtungen. Die Verteilung der betroffenen Bereiche deckt sich auch hier mit den hufigeren Schlieungsraten aus Abbildung 1.

7.4 Studie IV

Die Autoren Yue Li, Charlene Harrington, William D. Spector, und Dana B. Mukamel bekrtigen mit ihren Untersuchungen den Zusammenhang zwischen Pflegeheimschlieungen und schlechter finanzieller Vergtung. Die finanziell geringfige Vergtung liegt vermehrt bei Krankenhaus zugehrigen Einrichtungen vor.

⁴⁷Vgl. Marco Maier, <https://www.contra-magazin.com/2017/09/usa-grosse-gebiete-des-landes-sind-wirtschaftlich-kaputt/>

Diese Pflegeeinrichtungen werden in großer Zahl finanziell durch Medicaid und Medicare unterstützt. (Vgl. ANHANG, S.1101, Tabelle 4) Wie in Studie II erläutert, sind auch in der Studie IV Pflegeeinrichtungen mit hohen Qualitätsstandards eher von Schließungen betroffen. Erhebungen aus Studie IV wirken ergänzend für die Beantwortung der Frage aus Kapitel 7.2, Diskussion der Studie II.

„Nimmt man an, dass die Qualität durch qualifiziertes und lizenziertes Personal positiv beeinflusst wird, stellt sich die Frage warum diese Pflegeeinrichtungen tendenziell eher schließen?“

Der jeweilige Bundesstaat reguliert und organisiert die Bestimmungen rund um Medicaid und Medicare Programmen.⁴⁸ Für die Bundesstaaten stellen die Auflagen der Programme eine hohe finanzielle Last dar. Datenanalysen der Studie IV zeigen auf, dass viele lizenzierte Pflegeeinrichtungen freiwillig und geplant aus Medicaid und Medicare Programmen austreten. (Vgl. ANHANG 4, S. 1798 – 1799 Tabelle1) Diese Entscheidungen verdeutlichen das Problem der Leistungsvergütung durch Medicaid und Medicare.

Sind die Bundesstaaten mit der Finanzierung der Medicaid und Medicare Programme überfordert?

In Bundesstaaten mit hoher Unternehmenskonzentration ist es prozentual wahrscheinlicher, dass Pflegeeinrichtungen aus den Programmen austreten. Begleitend ist bei diesen Pflegeeinrichtungen die Leistungsvergütung durch Medicaid und Medicare zu gering. (Vgl. ANHANG 4, S. 1798 – 1799 Tabelle1) Die medizinische und pflegerische Versorgung von Menschen wird über die staatlich organisierten Programme zu geringfügig unterstützt. Im Durchschnitt werden weniger als die Hälfte der Kosten übernommen und diese Angabe variiert noch unter den Bundesstaaten.⁴⁹

⁴⁸Vgl. Barbara S. Klees, Christian J. Wolfe, and Catherine A., 11.2011, S. 22 u. H. Nadolski, 2006, S. 12

⁴⁹ Vgl. Dr. F. Wild, 2003, S.36

7.5 Schlussfolgerung

In diesem Teil werden die Zusatzfrage und die Forschungsfrage beantwortet. Es wird versucht, eine allgemein gültige Aussage zu treffen. Die Aussage berücksichtigt länderspezifische Unterschiede zwischen den Vereinigten Staaten und Großbritannien. Zusätzlich wird die Übertragbarkeit der Erkenntnisse auf Deutschland erschlossen.

Ziel der Arbeit ist es, Herausforderungen für die Wettbewerbsfähigkeit von Pflegeeinrichtungen aufzuzeigen. Der ansteigende professionelle Pflegebedarf ist eine ausschlaggebende Größe, die Herausforderungen in verschiedenen Bereichen entstehen lässt. Die Analyse verschiedener Erhebungen im Zusammenspiel mit theoretischen Grundlagen offenbart die vielfältigen Einflüsse verschiedener Faktoren auf Pflegeeinrichtungen. Mit der Beantwortung der Zusatzfrage kann zusammengefasst werden, dass bestimmte Faktoren die Wettbewerbsfähigkeit beeinflussen. Vorerst wird die Zusatzfrage beantwortet.

Welche Faktoren beeinflussen die Marktbeständigkeit einer Pflegeeinrichtung?

Faktoren, die einen negativen Einfluss auf die Marktbeständigkeit ausüben, werden für das Verständnis mit einer Schließung der Einrichtung in Verbindung gesetzt. Dieser Gedankengang ermöglicht eine vereinfachte Darstellung wichtiger und einflussreicher Faktoren.

In den Studien I bis IV unterliegen Konkurrenz und Qualität besonderer Aufmerksamkeit. Bedeutsame Unterschiede der Faktoren im Vergleich zu geschlossenen und nicht geschlossenen Einrichtungen beweisen Zusammenhänge zur Marktbeständigkeit.

7.5.1 Konkurrenz

Für die Vereinigten Staaten und für Großbritannien sind die Ergebnisse bezüglich der Konkurrenz ähnlich. Pflegeeinrichtungen in einem Gebiet mit hoher Unternehmenskonkurrenz sind eher von Schließungen betroffen als andere. Auch in Deutschland verschärfen konkurrierende Pflegeheime den Wettbewerb.

⁵⁰Vgl. P. Lennartz und H. Kersel, 2011, Abs. 34

Besonders neue und moderne Pflegeeinrichtungen scheinen attraktiver zu sein und verdrängen ältere Pflegeeinrichtungen. Zusätzlich stellen alternative Leistungsangebote für Pflegebedürftige die Wettbewerbsfähigkeit der Einrichtungen auf die Probe.⁵⁰

7.5.2 Qualität

Geschlossene Pflegeeinrichtungen in den Vereinigten Staaten weisen im Vergleich zu denen in Großbritannien gegensätzliche Qualitäten auf. In den Vereinigten Staaten sind qualitativ hochwertigere Pflegeeinrichtungen eher von Schließungen betroffen. Erläutert wird dies in den Kapiteln 7.2, Seite 29 und 7.4, Seite 34.

In Großbritannien hingegen sind Pflegeeinrichtungen mit niedriger Qualität eher von Schließungen betroffen. Beide Nationalitäten haben jedoch gemein, dass eine Unterstützung in der finanziellen Vergütung nicht ausreicht, um Qualität zu erhalten oder anzupassen.

Es wird ersichtlich, dass Konkurrenz und Qualität ernstzunehmende Faktoren sind. Finanzielle Mittel bestimmen jedoch die Möglichkeiten von Pflegeeinrichtungen, sich auf bestimmte Ereignisse einzustellen. Die Autoren Lennartz und Hans Kersel verweisen in ihren Untersuchungen von 2011 auch auf die finanzielle Schwäche von gefährdeten Pflegeeinrichtungen. Oft fehlen Gelder für die notwendige Renovierung der Pflegeeinrichtungen und Instandhaltung sanitärer Anlagen. Nötige Auflagen, Qualitätsstandards oder die individuelle Leistungsentfaltung gegenüber der Konkurrenz stehen unter finanziell schlechten Grundvoraussetzungen.⁵¹

Nun kann die Forschungsfrage beantwortet werden. Wie im Kapitel 5.2 erläutert benötigt der Sachverhalt des „steigenden professionellen Pflegebedarfs“ eine Beantwortung mit prognostischem Charakter. Die Forschungsfrage lautet:

Inwieweit wird der steigende Bedarf an professioneller Pflege die Wettbewerbsfähigkeit von Pflegeeinrichtungen beeinflussen?

⁵¹Vgl. P. Lennartz und H. Kersel, 2011, Abs. 37 - 40

Aufgrund mehrerer Fakten besteht kein Zweifel darin, dass es zukünftig zu einem steigenden Bedarf an professioneller Pflege kommt. Der Anstieg der älteren Bevölkerungen in vielen Industrieländern führt zu finanziellen Engpässen in der Pflege.⁵²

Besonders in Großbritannien und den Vereinigten Staaten reichen Steuergelder der Erwerbstätigen nicht aus, um Pflegekosten zu decken. Die Steuergelder fortlaufend zu erhöhen ist auf lange Sicht unmöglich. Private Vorsorgen und eigenständige Organisation der Pflege durch zum Beispiel Angehörige wird für viele eine Option darstellen. Hinzu kommt ein personeller Engpass in den Pflegeeinrichtungen. Laut der Studie von Erika Schulz könnten im Jahr 2050 über 607.000 Arbeitskräfte allein in der Pflege fehlen.⁵³ Die bevorstehende generalisierte Pflegeausbildung oder andere Maßnahmen könnten dem entgegenwirken. Diese Entwicklung stellt für die Marktbeständigkeit einer Pflegeeinrichtung eine zunehmende Herausforderung dar. Wie bereits im theoretischen Hintergrund erwähnt, gelten Pflegeeinrichtungen als wettbewerbsfähig, wenn sie trotz des Preissenkungswettbewerbs und des Qualitätsverbesserungswettbewerbs wirtschaftlich mithalten können. Damit Pflegeeinrichtungen qualitative Dienstleistungen erbringen können, benötigen sie Personal und Ausstattung. Wenn sie diese Leistungen zusätzlich noch preiswerter und bedarfsgerecht anbieten können als andere Pflegeeinrichtungen, ist die wirtschaftliche Beständigkeit gesichert.

⁵² Vgl. Dr. F. Wild, 2010, S.15 – 16

⁵³Vgl. E. Schulz, 2012, S.1

8. Fazit

Die zunehmend steigende Anzahl pflegebedürftiger Menschen ist eine Tatsache, der Deutschland, Großbritannien, die Vereinigten Staaten Amerikas und andere Industrieländer ausgesetzt sind. Besonders Pflegeeinrichtungen stehen des Öfteren unter zusätzlichem Erwartungsdruck. Sie bilden das nach außen sichtbare Instrument zur Befriedigung des allgemein steigenden Pflegebedarfs. Genauer betrachtet sind Pflegeeinrichtungen Teil eines Systems, bei dem ein individuelles Ressourcenaufkommen zu unterschiedlichen Herausforderungen führen kann. Die Finanzierung der Pflegeleistungen prägt die wirtschaftliche Standfestigkeit einer Pflegeeinrichtung. Staatliche Finanzierungsprogramme ermöglichen pflegebedürftigen Personen den Zugang zur professionellen Pflege. Bedauerlicherweise bleibt ein finanzieller Eigenanteil für Leistungen bestehen. Realistisch betrachtet könnte dieser Eigenanteil zukünftig weiter steigen. Der Grund liegt auch hier am zahlenmäßigen Anstieg der älteren Bevölkerung. Er birgt für viele Industrieländer eine finanzielle Last. Der resultierende privat zu leistende Eigenanteil für Pflegeleistungen gibt Pflegeeinrichtungen die Möglichkeit der individuellen Leistungsentfaltung. Diese wird besonders durch bestimmte Akteure auf dem Markt definiert. Die Akteure sind zum einen Pflegebedürftige und zum anderen konkurrierende Pflegeeinrichtungen. Die Konkurrenz wird auch durch Marktneulinge verschärft. Obwohl aus theoretischen Überlegungen ein Aufkommen pflegebedürftiger Menschen nicht zu erschöpfen ist, versuchen sich Pflegeeinrichtungen voneinander abzuheben. Die Wettbewerbsfähigkeit wird durch verschiedenste Einflüsse auf die Probe gestellt. Das können Veränderungen der staatlich geregelten Leistungsvergütungen, der Kaufkraft von Pflegebedürftigen und Veränderungen in der Nachfrage beziehungsweise im Pflege-trend sein. Der Schlüssel der wirtschaftlichen Beständigkeit einer Pflegeeinrichtung liegt darin, die Wettbewerbsfähigkeit zu erhalten.

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Eidesstattliche Erklärung

Hiermit versichere ich eine eigenständige Anfertigung dieser Arbeit. Ich habe die vorliegende Arbeit ohne unzulässige Hilfe Dritter und ohne Benutzung anderer als der angegebenen Quellen und Hilfsmittel angefertigt.

Zwickau, den 13.Februar 2018

Heiko Jach

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THE DETERMINANTS OF CARE HOME CLOSURE

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SUMMARY

This study investigates the causes of full closure of care homes in the English care home/nursing home market. We develop theoretical arguments about two causes for closure that are triggered by errors or external shocks: poor economic sustainability and regulatory action. Homes aiming to operate with lower quality in the market are argued for a number of reasons to be more susceptible to errors/shocks in setting quality, especially negative errors, leading to an empirical hypothesis that observed quality should negatively affect closure chance. In addition, given quality, homes facing relatively high levels of local competition should also have an increased chance of closure. We use a panel of care homes from 2008 and 2010 to examine factors affecting their closure status in subsequent years. We allow for the potential endogeneity of home quality and use multiple imputation to replace missing data. Results suggest that homes with comparatively higher quality and/or lower levels of competition have less chance of closure than other homes. We discuss that the results provide some support for the policy of regulators providing quality information to potential purchasers in the market. © 2015 The Authors. *Health Economics* published by John Wiley & Sons Ltd.

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1. INTRODUCTION

Care homes for frail older people close for a number of reasons. In this paper, we consider the question of whether low-quality homes are more likely to exit the market than high-quality homes, making this assessment using data on closure in the English care homes market between 2008 and 2010.

For many, the purchase of a care home place is a ‘distressed’ purchase given the circumstances under which most prospective clients have to make their decision (Lievesley *et al.*, 2011; Laing & Buisson 2012). In addition, the choice of a care home place is usually made once, and not many clients will move to other care homes thereafter (Bebbington *et al.*, 2001). As such, it can be difficult for consumers to make an informed decision (Netten *et al.*, 2001; Office of Fair Trading 2005). Given the ‘experience good’ nature of care home placements, and the costs of moving to other care homes once admitted, we are particularly interested in the impact that the quality rating (QR) system had on care home performance.

There is a small literature examining the impact of quality on care home closures. Castle (2005) found that greater levels of deficiency citations and lower levels of registered and licenced practice nurses employed significantly increased the likelihood of closure for a nursing home. Castle (2006), Castle *et al.* (2009) and Angelelli *et al.* (2003) also found a significant positive relationship between the number of deficiency citations and the likelihood of care home closure. Most of the small literature on the impact of competition on closure finds that closure rates are positively associated with competitiveness (Angelelli *et al.*, 2003; Darton 2004; Kitchener *et al.*, 2004; Castle 2005; Castle 2006; Castle *et al.*, 2009; Li *et al.*, 2010; Bowblis 2011).

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There is also descriptive evidence. Feng *et al.* (2011) found high levels of geographic concentration in nursing home closures across the USA when analysing all closures across the USA from 1999 and 2008 at the zipcode level. For England, a key (descriptive) study of the causes of care home closures comes from Netten and colleagues (2003; 2005) who found that (low) price was seen as an important contributory factor on closure rate, but not the quality of the home.

In this paper, we investigate the hypothesis that the observed quality of a care home is inversely related to its chance of closure. Closures are likely to be triggered by exogenous shocks or errors in business choices. We make two main arguments in relation to quality. First, that homes operating with low quality risk a greater chance of regulatory action that leads to closure following a shock or error. Second, that on average, economic sustainability is lower for homes with low quality—for example, because competition is greater in the low-quality end of the market which is dominated by public purchasers—and therefore given shocks or errors have more chance to lead to closure. We use a two-period panel of care homes data to investigate the impact of quality and competition on closure chance.

Section 1.1 follows with a brief overview of the English care homes market and its regulation, Section 1.2 outlines relevant theory and section 1.3 develops the hypotheses to be examined. Section 2 presents the data and empirical specification. Section 3 has the results. A discussion follows in Section 4.

1.1. The English care homes market and regulation

The English care homes market is highly competitive (Forder and Allan 2014). In 2010, there were almost 10 000 mostly privately-operated care homes with a resident population of 300 000 older people. Care homes have two distinct demand streams: individual self-payers and public authorities purchasing care on behalf of (low-income) residents.

In 2010, 40% of placements were self-funded by the individual or their family, with the remainder at least partially publicly-funded, and with the placement decision brokered by the public commissioner (mostly local government). Most care homes will take residents from either funding source.

Prior to October 2010, care homes were assessed by either the Commission for Social Care Inspection, the social care regulator until March 2009, or subsequently the Care Quality Commission (CQC), the new health and social care regulator, as to whether they complied with the National Care Standards Commission (Registration) Regulations 2001, the Care Standards Act 2000 and the Care Homes Regulations 2001. From April 2008, quality ('star') ratings were published following inspections by the regulator, being underpinned by the Key Lines of Regulatory Assessment guidelines, which linked ratings to outcomes and National Minimum Standards (see Forder and Allan 2014 for details).

Under this system, a care home with a poor quality rating (QR) would need to provide an improvement plan. The regulator would monitor the care home, and if standards were not improved, a robust inspection plan would be implemented, followed by enforcement action, which could ultimately lead to prosecution and/or deregistration.

The legislation was subsequently adapted so that from October 2010, the CQC has had to assess whether care homes complied or not to essential standards.

1.2. Theoretical considerations

Two reasons for why a care home might close—by which we mean ceases to trade in this paper—are the following. First, the care home might become economically unsustainable such that an alternative (non-care) use of the assets is more profitable. Second, as a result of regulatory action whereby the home consistently fails to meet minimum standards for registration.

Accordingly, the probability of home survival is

$$\text{prob}(S_i = 1) = \text{prob}(\pi_i \geq 0) \times \text{prob}(A_i = 0) = \pi_i^0(1 - r_i) \quad (1)$$

where $S_i = 0$ if the home closes and $S_i = 1$ if the home survives. Here, π_i is (long-term) profitability and r_i is the chance of direct regulatory action (A_i), leading to home closure.

Profitability will depend on revenue, R_i (price and demand) and the cost of provision, C_i . Revenue will be a function of *observed* quality, \tilde{q}_i , which is actual quality q_i measured with error, and also of competition, N_i . The probability of regulatory action, $r_i(\tilde{q}_i)$ is a direct function of observed quality, such that $r_{\tilde{q}} < 0$.

Purchasers (including public authorities) will care about quality so that $R_{\tilde{q}} > 0$. Costs will increase with quality $C_{\tilde{q}} > 0$. As such, the relationship between profit and quality will not be straightforward in most cases. The literature shows that general results for optimal quality choice q_i^* are unlikely, instead requiring specific assumptions (Tirole 1988). Nonetheless, in many specifications, markets become (vertically) differentiated with different levels of optimal quality (and profit) in different market segments (Shaked and Sutton 1982; Sutton 1986).

We can conjecture that providers select (actual) quality with error: $q_i = q_i^*(p_i^*) + q_i^e$, given optimal prices. Errors, q_i^e , are assumed to be external, with providers unable to anticipate their size. Through the action of errors, we can speculate that expected profits—and so survival rates—will be positively related to observed quality for a number of reasons, notwithstanding the complexity of vertical differentiation models.

A first potential reason is that a provider's expected revenue is more sensitive to errors at low levels of optimal quality than at high levels due to the chance of regulatory action, that is, $r_{\tilde{q}\tilde{q}} > 0$. Where homes have previously chosen low quality and are relatively close to the minimum quality standard threshold enforced by the regulator, (negative) errors have a (greater) chance of triggering a regulatory intervention that might lead to closure.

A second reason, similar to the first, is that even without regulatory action, a provider's demand is sensitive to their level of quality and in particular might show greater elasticity with respect to quality around lower quality levels than around higher quality levels: $R_{\tilde{q}\tilde{q}} < 0$. Again, for homes intending to operate (optimally) at low quality-low price levels, errors (especially negative errors) can lead to large changes in profit. The risk of non-sustainability will be higher as compared with levels aiming for moderate or higher-quality levels (given competitiveness).¹

A third reason stems from the possibility that profits can differ between (optimally) quality-differentiated market segments (even with perfect information). In segments where competition is higher and profits are lower, quality choice errors are more likely to lead to closure than market segments with higher profits. Although we cannot generalise, we might expect the lower-quality segment of the care homes market to operate with lower profits/higher levels of competition compared with higher-quality market segments (Forder and Allan 2014). A main reason is that monopsonistic local authority (public) purchasers operate in the lower quality segment where also, respectively, the size of demand relative to optimal home size is greater, and barriers to entry lower than the higher quality segment. In this case, closure rates would appear to be higher for homes operating in market segments with lower optimal quality than those with higher optimal quality following errors. This might be described as a market quality-composition effect.

We have argued that these effects result from errors about quality setting, because without errors and shocks, markets should be in steady states with only random home turnover/closure. However, in the context of imperfect observation of quality, optimal quality levels without error might in some cases be below those levels that would be optimal with full information, that is, some providers accept a small risk of regulatory action, balancing profitability if regulatory action is avoided (a form of moral hazard). Imperfect information considerations would tend to strengthen our expectation of a negative impact of observed quality on closure rates.

There may be reasons why higher quality market segments show greater closure risk, other things equal, for example, more discerning customers, but on balance we expect the above reasons to dominate.

¹Positive errors will also adversely affect profits as they are made given prices, that is providers will have set quality (and costs) higher than their prices can support.

This framework also allows us to consider the welfare implications of QR activities/policies. We might reasonably assume given the experienced nature of care home services that *ex ante* quality observations, absent QR, will be difficult and imprecise. In this case, homes that might otherwise have closed under QR through lack of demand or regulatory action will continue to operate with low actual quality. The experienced nature of quality, and the costs of moving home, would mean that residents in such homes would suffer lower quality than they would otherwise want to pay for. Because these homes would have otherwise closed with full (or at least better) information, imperfect information about quality is likely to be welfare reducing overall. In other words, unless the transaction costs of QR are very high, QR should have net positive welfare implications.

Some necessary conditions for us to draw this conclusion are (i) that the closure rate is negatively related to observed quality; (ii) that this effect arises through demand or regulatory responses to observed quality (i.e. not a market quality-composition effect); and (iii) without QR, *ex-ante* quality observation is poor.

We can test the first two conditions empirically with a structural closures model that includes both observed quality and competition, as outlined in the succeeding text. The last condition we assume to hold, based on the characteristics of the ‘product’ and the circumstances in which purchases are made.

Given quality, we would expect turnover (closure) of providers to be greater in more competitive/contestable markets for standard (low profitability) reasons (Forder *et al.*, 1996). The welfare implications in this case are for competition policy and beyond the remit of this paper.

1.3. Home closure hypotheses

Suppose the term s_i is the latent probability of home i continuing to operate: $s_i = \text{prob}(S_i = 1)$, being a function of expected profit as given in (1). A partial reduced-form for the expected profits of each provider, solving for competition N_i , is

$$s_i = s_i(q_i^*(N_i, z_i, m_i), N_i(q_i^*, z_i, m_i), z_i, m_i) \quad (2)$$

In this function, m_i are exogenous demand and cost factors (e.g. local input costs) and z_i are inherent and unobservable exogenous factors, such as productivity rates, the propensity to make errors or the impact of external shocks. At optimal quality (with no errors, $q_i^e = 0$), $\frac{\partial s_i}{\partial q_i^*} \Big|_{q^e=0} = 0$. As argued earlier, we speculate that quality choice errors will have a direct effect through (i) the chance of regulatory action and (ii) greater demand responsiveness at low quality. In both cases, errors reduce survival chance, particularly negative errors (denoted q_i^{-e}), that is, $\frac{\partial s_i(N_i)}{\partial |q_i^{-e}|} < \frac{\partial s_i(N_i)}{\partial |q_i^{+e}|} < 0$. Moreover, the impact of errors is greater at lower optimal quality: $\frac{\partial^2 s_i(N_i)}{\partial |q_i^e| \partial q_i^*} > 0$. As such, we would expect to see survival being positively correlated with actual quality and, in turn, observed quality: $\frac{\partial s_i(N_i)}{\partial q_i} > 0$.² Competition will negatively affect profits, given optimal quality choice $\frac{\partial s_i(q_i^*)}{\partial N_i} < 0$.

An indirect market-composition effect involves the negative impact of errors being exacerbated for high competition compared with lower levels, that is, $\frac{\partial^2 s_i(q_i^*)}{\partial |q_i^e| \partial N_i} < 0$. If levels of competition are negatively related to optimal quality choice, as we expect, then the market composition effect would produce the same results as a direct quality effect (i.e. $\frac{\partial^2 s_i}{\partial |q_i^e| \partial q_i^*} > 0$ and in turn $\frac{\partial s_i}{\partial q_i} > 0$), but is actually due to differences in competition between market segments. This market-composition effect should disappear if we hold competition constant in our empirical analysis.

The welfare implications as regards QR policy are as follows. In the absence of a QR policy, the (direct) effect of quality errors, $\frac{\partial s_i(N_i)}{\partial |q_i^e|}$, will be less adverse on providers compared with the situation under QR. So

²Assuming that observations are non-biased.

consumers would experience suboptimal quality from providers that would otherwise close and be replaced by lower-error, higher quality providers. Replacement should occur if the cause of closures is errors, that is, deviation from optimal quality. If the error had not occurred, the provider would have been sustainable.

In summary, we hypothesise that home survival (not closing) is positively correlated with observed quality overall, that is, $\frac{\partial s_i}{\partial q_i} > 0$ (hypothesis H1) and also when holding competition constant $\frac{\partial s_i(N_i)}{\partial q_i} > 0$ (hypothesis H1a).

Furthermore, given quality, competition should reduce survival chance: $\frac{\partial s_i(\tilde{q}_i)}{\partial N_i} < 0$ (hypothesis H2).

2. DATA AND EMPIRICAL SPECIFICATION

2.1. Empirical specification

The stochastic counterpart to (2) in linear form, and being explicit about time t , is

$$s_{it}^* = x_{it}'\beta + \epsilon_{it} = \beta_0 + \beta_1 q_{it}(N_{it}, z_{it}), + \beta_2 N_{it}(z_{it}, q_{it}) + \beta_3 m_{it} + \epsilon_{it}(z_{it}) \quad (3)$$

where ϵ_{it} is an error term. Only the *ex-post* status of the care home is known at time $t+1$ (i.e. at the next observation) in the following way:

$$\begin{aligned} S_{it+1} &= 1 \text{ if } s_{it+1}^* > 0 \\ S_{it+1} &= 0 \text{ if } s_{it+1}^* \leq 0 \end{aligned}$$

The variable, S_{it+1} , is the status of the care home at time $t+1$, a discrete 0/1 variable, which takes the value of 1 if the care home remained open between waves of the panel (i.e. between 2008 and 2010 and between 2010 and 2012) and 0 if the care home closed within the same period.

Because we could only observe the characteristics of surviving homes at time $t+1$, we used time t data as explanatory variables and therefore modelled $s_{it+1}^* = s_{it+1}^*(x_{it})$. As we have observed between $t=1$ and $t+1$ and also between $t+1$ and $t+2$, we can simplify the notation by considering two waves, $w=1, 2$, and writing (3) as

$$s_{iw}^* = x_{iw}'\beta + \epsilon_{iw} \quad (4)$$

and assuming

$$Prob(S_{iw} = 1 | x_{iw}) = F(x_{iw}'\beta) \quad (5)$$

where $S_{iw}=1$ or 0 if $S_{it+w}=1$ or 0.

2.2. Data

To construct our panel of care homes, we used the social care regulator's register of care homes from three points in time: 8th May 2008, 30th September 2010, and 30th December 2012.

The care homes sector can be classified by the following: registration type (with or without registered nurses); primary client group (for example, homes catering for people with mental health problems, learning disability, dementia, and other old age); and organisational type (public, private, or voluntary sector). There were 18 486 care homes of all classifications on the CQC register in 2008, 18 040 in 2010 and 17 527 in 2012.

The CQC register was augmented with data from a commercially-available dataset from care home market specialists, Laing and Buisson (LB). In particular, the LB data include a variable indicating the primary client group served by the care home and care home organisational type, these variables being used in the selection of the care homes population for the study.

We matched between the CQC register and the LB dataset using a hierarchical process, matching on post-code (full initially, then shortened), care home name, address, telephone number and number of registered

places. Using this process, we were able to match the LB data to 98.75% of *all* classifications of care homes on the CQC register for 2008, 99.39% for 2010, and 99.29% for 2012. There were 231 homes in 2008 and 110 homes in 2010 for which we lacked a primary client group designation.

For the analysis, we selected care homes in the CQC registers for the two baseline years that (i) had a primary client group classification of either old age or dementia; and (ii) operated in the independent sector, that is, private or voluntary. As a result, we had 9324 homes in 2008 and 9330 homes in 2010. Note that any care home that changed client group or sector so that it ceased to meet the selection criteria in subsequent waves was dropped from that subsequent wave.

Having selected the care home population in any given year, the determination of closure status was made by identifying whether each care home remained on the register at the subsequent time point. In principle, any home not on the register in the subsequent period could be regarded as closed, because registration with the CQC is a legal requirement to providing care. The focus was homes that had entirely ceased to operate. Consequently, we ignored any change in ownership/organisation for this purpose, regarding these homes as still open.

In adopting this approach, it was important to determine as far as possible whether a home remained on the register, recognising the potential for miscoding between periods in the data. Consequently, we used multiple data items in a hierarchical fashion to match between years. The starting point was to attempt to match across periods using the CQC identifier. If homes could not be matched between years on this basis, we then used the LB identifier. If homes were then not showing a match, we continued the process using name, address, and so on (as with the LB matching). Only when a home in the baseline year could not be matched to a home in the subsequent period's register on any of these criteria did we conclude that the home had closed.

On this basis, 320 (3.43%) of those care homes (in the selected population of 9324) that were open in 2008 had closed by 2010. Also, by 2012, a further 302 (3.24%) care homes that were operating in 2010 had closed.

2.2.1. Variables. Quality was measured using the CQC star rating measure, which can be either zero stars (poor), one star (adequate), two stars (good) or three stars (excellent). The Office of National Statistics in England commissioned research that showed both a reasonable degree of inter-rater reliability in the assessment of ratings and a significant positive relationship between QRs and the social care-related quality of life for a sample of care home residents (Netten *et al.*, 2010). Due to the small number of 0 star ratings (1.92%), we combined this with a one star (adequate) rating. We used either a dummy variable: 0/1 stars and 2/3 stars, or a three-way categorical variable.

Competition was measured using a distance-time and travel-time-weighted Herfindahl-Hirschman Index (HHI) with a market radius of 20 km around each care home. For more information on this measure, see Forder and Allan (2014). The HHI takes values between 0 and 1 with higher values indicating more concentration (lower competition) in the market.

Various home-level characteristics were included in the analysis as control factors: age (number of years since first registration), if the home was a nursing or residential home, whether it was purpose-built, size (number of beds), voluntary sector, primary client (older people or those with dementia) and the number of homes in the organisational group.

We also included local market characteristics as controls by mapping the home to its standard-classification small geographical area, specifically its lower-layer super output area (LSOA).³ The LSOA-level control factors were the following: percentage of females claiming job seekers' allowance (JSA) (a proxy for unemployment rates), the proportion of the population 65 and over, and rank of the area's Multiple Deprivation Scale score. This scale is a national index ranking small areas of England from most deprived (rank of 1) to least deprived (rank of 32 482). We also controlled in all estimations for the region where the care home

³See <http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/census/super-output-areas--soas-/index.html>

was located (East of England, East Midlands, London, North East, North West, South East, South West, West Midlands and Yorkshire or Humberside).

2.2.3. Missing data and imputation. The QR system in operation over the period was first introduced in 2008. As a result, a number of care homes on the register had not been rated in 2008; specifically 6598 independent sector care homes (70.77%) had been rated by May 2008. In 2010, 9049 (96.99%) homes had been rated, with virtually all of those homes that were not inspected at this time being newly opened.

There were also some missing data amongst the control variables in the two-wave population (of 18 654 homes): registration year (18 homes); purpose-built (80 homes); and organisational group (26 homes).

We do not expect that QRs were missing *entirely* at random. Moreover, because the QR system was new at the time, we may assume that inspectors did *not* target inspections on homes with poor QR. If they did, this would mean that data were missing not at random. Instead, we assumed that any targeting used other indicators available to inspectors, which are, in the main, available in the dataset. As such, we could use multiple imputation (MI), ignoring the exact process that led to the data being missing. Specifically, a chained imputation method was implemented with logit and predictive mean matching models to generate 20 imputations. The data were imputed across the two waves, with a wave dummy included in the imputation model.⁴

2.3. Estimation methods

There are a number of features of the data with implications for our empirical modelling approach. First, the missing data, and the use of an imputed dataset as noted. Second, the dependent variable in the model was a binary dummy: S_{iw} . Third, the data were in panel form with two transitions: wave 1 from 2008 to 2010 and wave 2 from 2010 to 2012. This design allowed us to model home-level effects.

A fourth issue was the potential for endogeneity. In the estimation—see (3)—there was likely simultaneity and also correlation of the unobserved factors z_{iw} with quality and competition. The lagged nature of the endogenous variables may help to reduce the significance of this problem, but because we might expect the unobserved factors to persist over time, that is, $z_{it+1} = z_{it+1}(z_{it})$, this problem may still arise. An instrumental variables (IV) approach could address this problem.

Given these features of the data, we used three main empirical modelling approaches. First, we estimated IV probit models on the pooled data with errors clustered on i . Second, to explicitly recognise the dependence over time in the panel data, we estimated population-averaged probit models with manually instrumented endogenous variables (also with robust standard errors). Third, a random effects probit model was also estimated. This estimation was mainly for comparison given that PA models may be inconsistent if there are home-level random effects: that is, where the marginal probability density function for each home-wave pair is $f(S_{iw}|\hat{x}_{iw}) = f(\hat{x}_{iw}\beta + \alpha_i)$ (where α_i is an unobserved random variable for the latter) rather than $f(S_{iw}|\hat{x}_{iw}) = f(\hat{x}_{iw}\beta + \alpha)$. Our strategy for testing for endogeneity, weak instruments and over-identification within the MI framework is outlined in the Appendix (Supporting Information). We were not able to test directly for the significance of random effects in MI regressions other than to use the standard likelihood-ratio (chi squared) test on each imputation. More pragmatically, we were able to compare the results with those from the pooled regression. Nonlinear fixed effects models are problematic—conditional MLE can be used but the conditioning means that observations are dropped when outcomes are unchanged through time (Cameron and Trivedi 2010).

⁴We did not impute for the 231 homes in 2008 and 110 homes in 2010 on the register missing the relevant LB data for selection criteria, believing this to be missing completely at random.

Following Forder and Allan (2014), the instruments used for competition were selected to reflect demand and supply factors applying at market level: specifically medium-layer super output area (MSOA) level deprivation rank and the proportion of the population 65 and over (excluding the LSOA that the care home was located in). The argument for their exogeneity was that any effects on closure status of the older population rate variable and deprivation rank variable will be captured at the lower LSOA level, and these LSOA variables are included as independent variables. Rather, the MSOA-level factors will largely affect *competitor's* behaviour and in turn, the level of competition facing the home in question.

For quality, a similar approach was adopted, but in this case using the average level of quality at the district council ($n=352$) level (excluding each respective home's star rating) and MSOA-level deprivation rank. The effect of quality on a home's status was directly measured by the inclusion of the home's own QR. However, the choice of quality is to some degree affected by the quality choices of competitors in the local market, and these 'market-level' choices are reflected in the district council level variable. Similar spill-over arguments were made by Hirth (1999) and Grabowski and Hirth (2003) where quality is driven by the number of voluntary care homes in a market.

3. RESULTS

Descriptive statistics for the initial and MI datasets are presented in Tables I and II, the former with the waves pooled and the latter separately.

Results of the closure status models are presented in the following tables. Table III reports the main models 1 and 2. Table IV reports two comparison models 3 and 4. Initially, we estimated with both endogenous quality and competition. The data suggested that the main competition variable (HHI 20 km travel time adjusted) was endogenous but quality was not. These results are given in Model 3 for comparison. Consequently, the other models were estimated with just endogenous competition.

Model 4 estimated a random effect probit model with manually instrumented competition. Likelihood ratio tests were recorded for each imputation and showed mixed significance of panel-level effects (in 13 out of 20 imputations, the LR test was significant at the 5% level). Adopting the more parsimonious approach, we instead focused on the pooled/PA-average models.

Model 1 explicitly allows for the endogeneity of the competition variable, but with pooled data across the waves (albeit with errors clustered on homes between the waves). The PA-model (Model 2) recognises the panel nature of the data, but does not allow for the stochastic nature of the predicted value of competition. Nonetheless, the results between these models are very similar.

All models satisfied tests for weak instruments and over-identification (as outlined in the Appendix). We also implemented a specification test in the PA-model by including squared predicted values of the dependent variable. This variable was insignificant.

In all models, (exogenous) quality and (endogenous) competition were significant. Good/excellent QR was associated with a reduced probability of closure as hypothesised (hypothesis H1a). Concentration (HHI) was negatively associated with closure rate, which supports hypothesis H2. Excluding competition from Model 1 did not alter the quality effect found, supporting hypothesis H1. Interactions between quality and wave were not found to be significant where tested in Model 1, nor were interactions between quality and competition (HHI), suggesting little or no indirect market composition effects.

The respective effect sizes (estimated at sample means) are given in Table V. Model 1 produced slightly higher effect sizes of quality and competition on closure rate than Model 2. Nonetheless, homes with good/excellent QRs were around 4 percentage points less likely to close than poor/adequate quality rated homes (compared with an average closure rate of 3.3%). In relative terms, good/excellent rated homes are 2.5 times less likely to close.

Table I. Descriptive statistics for pooled dataset

	All	Non-imputed data		MI data (20 imputations)		
		Remained open	Closed	All	Remained open	Closed
Number of care homes	15 606	15 124	482	373 080	360 640	12 440
Status—closed	0.031 (0.173)	0 (0)	1 (0)	0.033 (0.180)	0 (0)	1 (0)
Quality	2.026 (0.567)	2.035 (0.564) ***	1.749 (0.585)	2.015 (0.566)	2.025 (0.563) ***	1.738 (0.584)
Average star rating	0.852 (0.355)	0.858 (0.349) ***	0.672 (0.470)	0.847 (0.360)	0.853 (0.354) ***	0.665 (0.472)
Competition	0.016 (0.015)	0.016 (0.015) ^{NS}	0.015 (0.015)	0.016 (0.015)	0.016 (0.015) ***	0.015 (0.014)
HHI 20 km						
Care home characteristics						
Age (of registration)	20.44 (6.05)	20.42 (6.08)	21.04 (4.92) **	20.35 (6.14)	20.32 (6.16)	21.19 (5.30) ***
Size	36.08 (20.82)	36.47 (20.88) ***	23.62 (13.84)	36.06 (20.93)	36.50 (20.99) ***	23.33 (13.93)
Nursing home	0.366 (0.482)	0.370 (0.483) ***	0.207 (0.406)	0.366 (0.482)	0.371 (0.483) ***	0.203 (0.402)
Voluntary sector	0.147 (0.354)	0.144 (0.351)	0.234 (0.424) ***	0.135 (0.342)	0.132 (0.339)	0.219 (0.413) ***
Dementia clients	0.153 (0.360)	0.153 (0.360) ^{NS}	0.158 (0.365)	0.156 (0.363)	0.156 (0.363) ^{NS}	0.154 (0.361)
Organisational group size	44.02 (116.35)	44.78 (117.31) ***	20.07 (76.77)	45.65 (120.32)	46.56 (121.45) ***	19.35 (76.13)
Purpose built	0.238 (0.426)	0.242 (0.429) ***	0.108 (0.311)	0.235 (0.424)	0.239 (0.427) ***	0.103 (0.304)
Local demand characteristics (LSOA level)						
ISA female claimants (%)	0.475 (0.421)	0.473 (0.418)	0.559 (0.503) ***	0.461 (0.413)	0.459 (0.410)	0.522 (0.478) ***
Older population (%)	24.99 (8.62)	25.05 (8.60) ***	23.24 (8.80)	24.88 (8.59)	24.94 (8.58) ***	23.12 (8.76)
Deprivation rank	16 875.7 (8795.4)	16 916.1 (8781.8) ***	15 607.0 (9131.6)	16 799.0 (8798.8)	16 837.1 (8790.8) ***	15 695.9 (8959.8)
Region	5.304 (2.413)	5.300 (2.416) ^{NS}	5.434 (2.304)	5.282 (2.432)	5.276 (2.436)	5.441 (2.317) ***
Additional instruments						
LA average star rating	2.031 (0.172)	2.031 (0.172) ^{NS}	2.025 (0.175)	2.022 (0.174)	2.022 (0.174) ***	2.015 (0.176)
Msoa older population (%)	22.07 (6.86)	22.10 (6.85) ***	21.03 (7.23)	22.00 (6.85)	22.03 (6.83) ***	20.97 (7.12)
Msoa deprivation rank	17 099.4 (7892.4)	17 130.4 (7881.4) ***	16 126.3 (8183.4)	17 023.3 (7912.6)	17 052.2 (7903.9) ***	16 185.1 (8111.96)

MI, multiple imputation; LSOA, lower-layer super output area; ISA, job seekers' allowance.

Standard deviations in parentheses. For the simple bivariate comparisons,

^{NS}, indicates no significant difference by status.

* , ** and *** indicate a greater value for either remained open or closed care homes at 10%, 5% and 1% significance, respectively.

Table II. Descriptive statistics across waves

	Non-imputed data		MI data (20 imputations)	
	Wave 1	Wave 2	Wave 1	Wave 2
Number of care homes	6586	9020	186,480	186,600
Status—closed	0.028 (0.165)	0.034 (0.179)**	0.034 (0.182) ^{NS}	0.032 (0.177)
Quality (2/3)	0.837 (0.370)	0.864 (0.343)***	0.829 (0.377)	0.863 (0.344)***
Competition (HHI 20 km)	0.016 (0.015)**	0.016 (0.014)	0.016 (0.015) ^{NS}	0.016 (0.014)

MI, multiple imputation; HHI, Herfindahl-Hirschman Index.

Standard deviations in parentheses. For the simple bivariate comparisons:

^{NS}indicates no significant difference by status.

*, ** and *** indicate a greater value at either wave 1 or wave 2 at 10%, 5% and 1% significance, respectively.

The construction of the HHI means that marginal effects appear very high. In elasticity terms, the effects are still relatively large, with point estimates equivalent to a 1.2% or 1.0% reduced probability of closure for a 1% increase in HHI.

We performed a number of robustness checks. First, the models estimated on non-imputed data produced very similar results to the imputed data (see also Table V). Second, we estimated the model splitting the good

Table III. Model results—multiple imputation probit models 1 and 2

	Model 1 (IV probit)		Model 2 (Pop-averaged probit)	
	Coefficient	Z	Coefficient	Z
Quality				
Quality good/excellent	-0.489 ***	-7.21	-0.554 ***	-10.37
Competition				
HHI 20 km time (predicted) (log)	-0.643 **	-2.38	-0.685 **	-2.19
Care home characteristics				
Purpose built	-0.229 ***	-3.66	-0.247 ***	-3.62
Age (of registration)	0.030 ***	2.60	0.031 ***	2.66
Age (of registration) sqrd	-0.001 **	-2.33	-0.001 **	-2.30
Nursing home	0.058	1.21	0.059	1.15
Dementia clients	0.075	1.41	0.077	1.38
Voluntary sector	0.577 ***	10.27	0.617 ***	11.09
Organisational group size (100 s)	0.059	0.69	0.056	0.63
Organisational group size (100 s) (squared)	-0.010	-0.55	-0.009	-0.50
Size (log)	-0.598 ***	-11.49	-0.628 ***	-16.38
2010 wave	0.056	1.40	0.060	1.39
Local demand characteristics (LSOA level)				
Deprivation rank (1000 s)	-0.004	-1.42	-0.004	-1.41
Older population proportion	-0.003	-0.90	-0.003	-0.98
JSA female claimants proportion	-0.335*	-1.75	-0.352*	-1.73
JSA female claimants proportion (squared)	0.087 ***	2.04	0.092 **	2.08
Constant	-2.663 ***	-2.13	-2.844 **	-1.99
Regions	YES		YES	
n	18654		18654	
Imputations	20		20	
Average RVI	0.013		0.022	
Largest FMI	0.161		0.300	
Weak instruments	71.980 ***	<0.001	71.980 ***	<0.001
Over-ID	0.790 ^{NS}	0.454	1.640 ^{NS}	0.195
Endogeneity	2.060 ***	0.039	2.060 **	0.039
Specification	N/A		-0.680 ^{NS}	0.494

IV, instrumental variables; HHI, Herfindahl-Hirschman Index; LSOA, lower-layer super output area; JSA, job seekers' allowance; RVI, relative variance increase; FMI, fraction of missing information.

^{NS}indicates not significant.

*, ** and *** indicate 10%, 5% and 1% significance, respectively.

Table IV. Model results—MI probit models 3 and 4

	Model 3 (PA probit with endog quality)		Model 4 (RE probit)	
	Coefficient	Z	Coefficient	Z
Quality				
Quality good/excellent				
Quality good/excellent (predicted)	-0.034	-0.06	-0.718 ***	-5.82
Competition				
HHI 20 km time (predicted) (log)	-0.683 **	-2.21	-0.946 **	-1.98
Care home characteristics				
Purpose built	-0.268 ***	-3.91	-0.331 ***	-3.11
Age (of registration)	0.029 **	2.56	0.042 **	2.43
Age (of registration) sqrd	-0.001 **	-2.30	-0.001 **	-2.17
Nursing home	0.067	1.34	0.076	1.08
Dementia clients	0.094	1.62	0.109	1.36
Voluntary sector	0.566 ***	9.17	0.842 ***	4.81
Organisational group size (100 s)	0.055	0.64	0.084	0.68
Organisational group size (100 s) (squared)	-0.009	-0.52	-0.014	-0.55
Size (log)	-0.613 ***	-16.43	-0.866 ***	-4.92
2010 wave	0.032	0.71	0.178	1.60
Local demand characteristics (LSOA level)				
Deprivation rank (1000 s)	-0.006*	-1.87	-0.006	-1.39
Older population proportion	-0.004	-1.15	-0.005	-1.03
JSA female claimants proportion	-0.385*	-1.89	-0.490*	-1.68
JSA female claimants proportion (squared)	0.101 **	2.23	0.127*	1.94
Constant	-3.208 **	-2.12	-3.840*	-1.80
Regions	Yes		Yes	
n	18 654		18 654	
Imputations	20		20	
Average RVI	0.0001		0.03	
Largest FMI	0.0027		0.17	
Weak instruments—competition	71.980 ***	<0.001	71.980 ***	<0.001
Weak instruments—quality	69.510 ***	<0.001		
Sargan test (over ID)—competition	1.410 ^{NS}	0.243		
Sargan test (over ID)—quality	1.350 ^{NS}	0.260		
Endogeneity—competition	2.240 **	0.025		
Endogeneity—quality	-1.210 ^{NS}	0.227		
Specification	-1.640 ^{NS}	0.102		

HHI, Herfindahl-Hirschman Index; LSOA, lower-layer super output area; JSA, job seekers' allowance; RVI, relative variance increase; FMI, fraction of missing information.

^{NS}indicates not significant.

*, ** and *** indicate 10%, 5% and 1% significance, respectively.

and excellent categories of the QR. The estimated probabilities of closure were: 0.014 for excellent ($p=0.027$), 0.024 for good ($p<0.01$) and 0.065 for poor/adequate ($p<0.01$).

Third, we used a categorical version of predicted competition split into quartiles. These results showed that only homes in the second most competitive quartile had a significantly reduced probability of closure compared

Table V. Marginal effects (point estimates)—multiple imputation probit models 1 and 2

	Model 1 (IV probit)	Model 2 (Pop-averaged)	Non-imputed IV probit	Unadjusted
Probability of closure (predicted)				
Quality: 0/1 stars	0.066	0.057	0.065	0.073
Quality: 2/3 stars	0.023	0.016	0.023	0.026
Diff	0.043	0.040	0.042	0.047
HHI (concentration)				
Marginal effect at mean	-2.603	-2.124	-3.914	
Elasticity at mean	-1.218	-0.994	-1.831	

IV, instrumental variables; HHI, Herfindahl-Hirschman Index

with homes in the most competitive markets ($p=0.022$). Otherwise, there was no significant difference in the likelihood of closure between homes in the other two more concentrated quartiles of markets ($p=0.154$ and $p=0.538$, respectively) and those in the most competitive markets. Fourth, when adding lagged quality and competition effects, we found no significant effect of lagged (2008) quality ($p=0.521$) and a slightly significant negative effect of 2008 competition ($p=0.061$) on the likelihood of closure in 2012. The non-lagged effects remained unchanged. Fifth, we included in both waves those care homes that only met the selection criteria in one wave. Treating these homes as closed or as remaining open did not alter the results. Finally, we estimated a model treating competition as exogenous for comparison. In this case, competition was insignificant as expected ($p=0.205$) but still negatively signed.

4. DISCUSSION

The analysis supported our hypotheses that care homes with (prior) poor quality were more likely to close than homes with better quality and that homes experiencing high competition would also be more likely to close than those operating in less competitive markets.

There are a number of limitations to the analysis. First, our panel data analysis assessed how current levels of quality and competition affect subsequent chances of closure. We could not look at whether a change in home status was determined by a *change* in QR, that is, a differences analysis, because home-specific data, including QRs, were only available for homes remaining open. Nonetheless, a more limited cross-sectional analysis did show that a reduction in quality between 2008 and 2010 was associated with an increased chance of a home closing between 2010 and 2012.

Another potential weakness is in identifying actual home closures. Whilst we conducted a detailed analysis and data matching process, there remains a small possibility that coding errors prevented matching across time. A third issue is that we have assumed that any systematic causes of missing quality data are reflected in our observed data, and therefore suitable for multiple imputation. A potential concern rests with the argument that regulators focused initially on poor quality homes. However, inspectors could not, at least directly, use this new quality information to assess homes. Moreover, we did not find any interaction between quality effects and wave, suggesting that the relationship between quality and closures in 2008 was the same as in 2010, where complete quality data were available.

In this analysis, we considered ‘complete’ closures: that is, where a care home at a specific address ceased to operate in any form thereafter. We have not therefore considered the impact of prior quality choices and competition on supply-side changes that fell short of complete closure (e.g. changes in ownership, sector or client type). This might include homes that may have been actually closed and then reopened following a change in ownership.

We found that closure rates were negatively associated with quality controlling for competition. This result is consistent with our hypothesis that purchasers and/or regulators were responding to quality information, avoiding and/or taking action against homes that set quality ‘too low’ (as a result of errors and/or shocks). Although we cannot rule out a market composition effect, despite not finding an interaction between quality and competition, this result has welfare implications when we assume the QR system provides better information for purchasers. In the absence of quality information provided by the QR process, some residents would end up in homes that would otherwise have closed with QR information. This is a negative welfare effect relative to full information. Clearly, closing homes has potential adverse impacts on current residents, but some recent research suggests that these negative events can be limited through orderly, timely, and personal relocation processes (Holder and Jolley, 2012).

Home closure might also arise from market structural barriers or changes in public funding levels overall that are not specifically due to the availability of quality information (Allan and Forder 2012). These causes might also have welfare implications for competition policy and public financing choices, but they are outside the remit of this paper.

Quality ratings were discontinued in June 2010 and replaced with minimum compliance measures. However, at the time of writing CQC were consulting relevant parties on a new assessment process for health and social care with the aim of launching a new ratings system for care homes in October 2014 (Care Quality Commission 2014). In this study, we are unable to comment directly on the effectiveness of minimum compliance systems compared with QR regulatory policies, but we believe the more delineated quality information provided by the latter would help purchasers in making better decisions.

CONFLICTS OF INTEREST

The authors have declared that there are no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's website.

Factors Associated with Increasing Nursing Home Closures

Nicholas G. Castle, John Engberg, Judith Lave, and Andrew Fisher

Purpose. We determine the rate of nursing home closures for 7 years (1999–2005) and examine internal (e.g., quality), organizational (e.g., chain membership), and external (e.g., competition) factors associated with these closures.

Design and Method. The names of the closed facilities and dates of closure from state regulators in all 50 states were obtained. This information was linked to the Online Survey, Certification, and Reporting data, which contains information on internal, organizational, and market factors for almost all nursing homes in the United States.

Results. One thousand seven hundred and eighty-nine facilities closed over this time period (1999–2005). The average annual rate of closure was about 2 percent of facilities, but the rate of closure was found to be increasing. Nursing homes with higher rates of deficiency citations, hospital-based facilities, chain members, small bed size, and facilities located in markets with high levels of competition were more likely to close. High Medicaid occupancy rates were associated with a high likelihood of closure, especially for facilities with low Medicaid reimbursement rates.

Implications. As states actively debate about how to redistribute long-term care services/dollars, our findings show that they should be cognizant of the potential these decisions have for facilitating nursing home closures.

Key Words. Nursing homes, closures, quality, OSCAR

Since the implementation of the Medicaid program in 1965, nursing homes have been the predominant institutional providers of long-term care. However, in recent years, there has been growth in alternative sources of long-term care, such as assisted living and home care services (Hawes et al. 2003). Furthermore, public policy makers have expanded the coverage of home- and community-based services (primarily under Medicaid waivers) in order to keep those in need of long-term care in the community (Wiener, Tilly, and Alecxih 2002). Not surprisingly, the expansion of these long-term care alternatives has influenced nursing homes. We have seen a drop in the nursing home occupancy rates (Bishop 1999) from an average of 91 percent in 1991

(Online Survey, Certification and Reporting [OSCAR] 1992) to 85 percent in 2006 (OSCAR 2007). Although the number of nursing homes has increased over this time period, we expect that the expansion of long-term care alternatives may have influenced nursing home closures in recent years.

We first look at the rate of nursing home closures over a recent 7-year period (1999–2005) and, second, examine internal (e.g., quality), organizational (e.g., hospital affiliation), and external (e.g., competition) factors associated with these closures. Examining internal, organizational, and external factors is important because we expect that some types of nursing homes (e.g., hospital based) may be more likely to close than others and some external forces (e.g., a high degree of competition) may influence closure more than others.

LITERATURE REVIEW

We identified five empirical studies examining nursing home closures. Dalton and Howard (2002) used the administrative database, the OSCAR data, to provide descriptive analyses of exit and entry in the nursing home market from 1982 to 1998. They found that entry exceeded exit until 1998 and that the market expansion then ceased in 1998. Kitchener, Bostrom, and Harrington (2004), using data from the California Office of Statewide Healthcare Planning and Development, provided more detailed insights into the causes and effects of nursing home closures from 1990 to 2000 by examining nursing homes in California. They found that low Medicaid reimbursement rates, lower levels of private-pay residents, and relatively small size were associated with the likelihood of closure. More recently, using the OSCAR data and data from a survey of state nursing home regulators, Castle (2006) examined facility and market characteristics associated with closures. He found that lower Medicaid reimbursement rates, lower occupancy, higher competition, and lower quality of care were significantly associated with closure. On additional research, he found that nursing home competition (Castle 2005a) and quality of care (Castle 2005b) were major determinants of nursing home closures from 1992 to

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1999. Over this time period, 0.7 percent of the facilities closed each year (Castle 2005b).

In summary, these prior studies identified several internal (e.g., quality; Castle 2006), organizational (e.g., bed size; Kitchener, Bostrom, and Harrington 2004), and external (e.g., competition; Castle 2005a) factors to be associated with nursing home closures. However, various internal, organizational, and external factors have changed considerably since the completion of these studies. Medicare implemented a nursing home prospective payment system, the Centers for Medicare and Medicaid Services (CMS) has published data on nursing home quality, Medicaid payments have not kept up with inflation, and there is increasing competition from other long-term care providers. Furthermore, many nursing homes are in financial difficulty and many are operating under bankruptcy proceedings (Kitchener, O'Neill, and Harrington 2005).

Closure of nursing homes may have important implications for residents and the nursing home market. Reports detailing the circumstances surrounding nursing home closures (Castle 1997; Wood 2002) highlighted the resident stress involved and the possible negative health consequences. Moreover, one empirical study of 301 residents relocated from one closed nursing home to 40 other facilities identified significant detrimental effects of this relocation on residents' cognitive performance, depression, social engagement, and activities of daily living (Castle 2005c). For the nursing home market, the threat of closure may influence provider behavior in a positive way—nursing homes may improve quality of care or the types of services they provide (Castle 2005b).

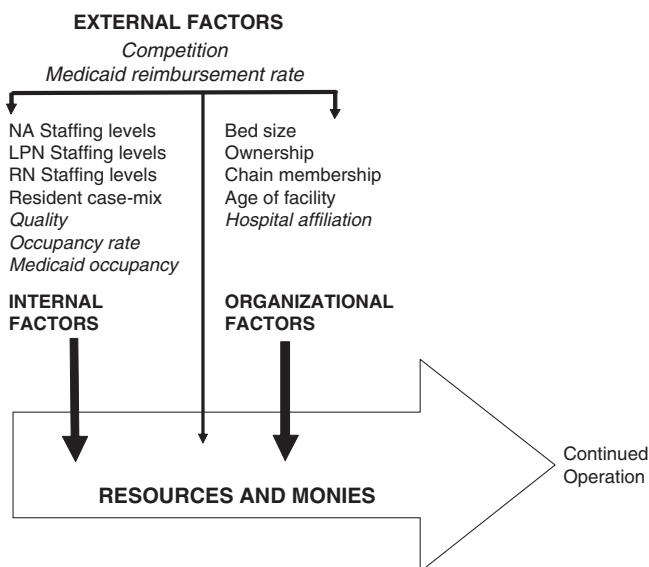
CONCEPTUAL FRAMEWORK

In prior research on nursing home closures, Castle (2005b) developed a conceptual framework based on the more extensive hospital closure literature. He proposed that external, organizational, and internal factors influenced closure. External factors are characteristics external to the organization, such as regulation. These factors help define the context in which the facility operates. Organizational factors are characteristics of the facility itself, such as chain membership. These factors are the relatively stable attributes of the facility. Internal factors are operating characteristics of the facility, such as the occupancy rate. These factors reflect operating decisions within the facility and, for many facilities, can vary over time.

In this paper, we enrich this framework. We speculate that institutional viability is highly dependent on available resources. State policies and regulations (external factors) can significantly impact the financial resources of an organization. Medicaid reimbursement, for example, varies based on state policies. Likewise, organizational factors and internal factors can significantly impact resources for operation. Chain membership (organizational factor) can provide a facility in financial difficulty, with resources needed to maintain operations. A high occupancy rate (internal factor) can help improve the revenue of a facility.

Our conceptual framework is shown in Figure 1. The external, organizational, and internal factors included in Figure 1 include all of those initially proposed by Castle (2005b) as well as those examined in prior research discussed above. In addition, we have included hospital affiliation and interactions. Each of the factors is expected to have a direct association with resources

Figure 1: Proposed Conceptual Model



Note: Variables presented in italics are the independent variables of interest in the analyses. External factors are defined as characteristics external to the organization, such as regulation. Organizational factors are defined as characteristics of the facility itself, such as chain membership. Internal factors are defined as operating characteristics of the facility, such as the occupancy rate.

and, therefore, closure. We also raise the possibility that external, organizational, and internal factors may act jointly on closure (i.e., interaction effects). Interaction effects are implied by the indirect pathways of some of the arrows in the figure. However, we note that many interactions are possible and, in this study, we focus on one interaction between Medicaid reimbursement rates and Medicaid occupancy.

Several of the factors in the conceptual model, including hospital affiliation, are further discussed below. We focus on specific factors (*italicized* in the figure) because they likely reflect recent changes in internal, organizational, and external factors of nursing homes.

Some further justification for this conceptual model is provided by recent qualitative analyses. Examining keywords from the text of 192 different newspaper articles (from January 1, 1999, to June 1, 2005) describing nursing home closures, Fisher and Castle (2008) identified financial concerns as the most frequently cited reason for nursing home closure. All of the factors presented in the conceptual model were also significant in this prior analysis, with Medicaid occupancy and Medicaid reimbursement being frequently cited.

FACTORS INFLUENCING NURSING HOME CLOSURES

Medicare introduced a prospective payment system for nursing homes in 1998. The new payment system led to a decrease in the Medicare payments in many facilities, but it had a relatively more negative impact on hospital-based skilled nursing facilities than freestanding facilities (Konetzka, Norton, and Sterns 2006). Nursing homes reliant on Medicare payments, such as hospital-based nursing homes, may have experienced overall financial losses. Thus, hospital-based nursing homes may be more likely to close than freestanding facilities due to these cuts in the Medicare payments. Moreover, hospital-based nursing homes may be more inclined to close than freestanding facilities because their closing would represent the closing of a single unit of a much larger facility rather than the closing of the whole organization. We hypothesize as follows:

Hypothesis 1: Hospital-based nursing homes are more likely to close than freestanding nursing homes.

Many nursing homes are reliant on Medicaid payments (Grabowski 2001). State Medicaid programs account for about approximately 50 percent

of all expenditures on nursing home services (Grabowski 2001). Because payments to nursing homes make up a significant portion of the states' Medicaid budgets, the states pay considerable attention to these costs. In recent years, Medicaid payments for nursing homes have not kept up with the rate of inflation (Grabowski et al. 2004). While facilities may be able to adapt to some reduction in reimbursements, at some point, the total revenue may not be sufficient for a facility to remain viable. Thus, Medicaid reimbursement rates may be associated with nursing home closures, and this association becomes more apparent over time as states ratchet-down their reimbursements. Moreover, the influence of Medicaid reimbursement rates is likely greater in facilities with a higher Medicaid occupancy. Facilities with higher Medicaid occupancy may be more likely to close and this association is likely to become more apparent over time as reimbursement rates decline. Thus, we hypothesize as follows:

Hypothesis 2a: Nursing homes with high Medicaid occupancy are more likely to close than those with low occupancy.

Hypothesis 2b: Nursing homes with low Medicaid reimbursement rates will be more likely to close than those with high reimbursement rates.

Hypothesis 2c: Nursing homes with both high Medicaid occupancy and low Medicaid reimbursement rates will be more likely to close than would be expected based on either factor individually.

Quality concerns with nursing homes are a chronic issue. For example, Lexis-Nexis lists 754 newspaper articles over the past 3 years describing the poor quality of nursing homes. These press reports may have sensitized consumers to the quality issues associated with choosing a nursing home. Furthermore, CMS has made improvements to the certification process (General Accounting Office [GAO] 1999). These improvements include greater consistency of inspections and more attention to resident quality issues (GAO 1999). In addition, more information on the quality of individual nursing homes is posted on the CMS website. With more attention on nursing home quality and with potentially stricter enforcement of rules and regulations, poor-quality nursing homes may be more likely to close. The influence of poor quality may also be cumulative. That is, as a facility gains a reputation for poor-quality resident, census may decline, fines may be levied, and the numbers of more profitable private-pay residents may decline. Thus, the association be-

tween poor quality and closure may become stronger over time. We hypothesize as follows:

Hypothesis 3a: Nursing homes with poor quality are more likely to close than nursing homes with high quality.

Hypothesis 3b: Nursing homes with poor quality are at increased risk for closure over time than those with high quality.

In many markets, nursing homes compete with each other for residents (Mukamel, Spector, and Bajorska 2005). Competition can promote innovation and quality improvement. Nevertheless, facilities that do not compete successfully risk closure. Thus, we propose that higher levels of competition will be associated with nursing home closures. As we have argued above, with respect to quality and Medicaid reimbursement, the influence of competition may be cumulative; that is, the association between higher competition and closure may become stronger over time. We hypothesize as follows:

Hypothesis 4a: Nursing homes operating in more competitive markets are more likely to close than nursing homes operating in less competitive markets.

Hypothesis 4b: Nursing homes operating in more competitive markets are at increased risk for closure over time than those operating in less competitive markets.

Others have reported on the declining occupancy rates of nursing homes (Bishop 1999). Analyses of the OSCAR data show that occupancy rates have continued to decline in recent years. As occupancy rates fall, it is likely that profitability also decreases. Thus, nursing homes with lower occupancy rates may be more likely to close. In some cases, facilities may continue to operate as occupancy rates decline. Facilities may use existing resources and reserves to continue to operate. However, this depletion of resources cannot occur indefinitely and the association between low occupancy and closure may become stronger over time. We hypothesize as follows:

Hypothesis 5a: Nursing homes operating with low occupancy rates are more likely to close than nursing homes with high occupancy rates.

Hypothesis 5b: Nursing homes with low occupancy rates are at increased risk for closure over time than those with high occupancy rates.

DATA AND METHODS

Data Sources

We obtained information on closed nursing homes from a survey of state regulatory agencies. A letter was sent out to the Departments of Ageing, nursing facility regulatory agency, or elder care ombudsman of all 50 states and the District of Columbia asking for assistance in producing a list of the names of all nursing homes that had closed between January 1, 1999, and June 1, 2005. With repeat mailings, e-mail, and phone call follow-up, we achieved a response rate of 100 percent. We noted in our mailings and phone calls that we were interested in closed facilities and not those that were sold or had undergone ownership change. We checked the accuracy of the data received by looking in the 2006 OSCAR data to see if any of the closed facilities were listed therein—none were. We also checked whether phone listings of potentially closed facilities existed. No closed facility had a listed telephone number.

We obtained data on all internal and organizational factors as well as data on some external (i.e., competition) factors from the OSCAR. The OSCAR is conducted by state licensure and certification agencies as part of the Medicare/Medicaid certification process and includes almost all nursing homes in the United States. The few nursing homes that are neither Medicare nor Medicaid certified (approximately 1,000) are not included in the data. The OSCAR data are widely used (e.g., Grabowski et al. 2004). Nevertheless, it should be acknowledged that the reliability of the data has been questioned (Harrington et al. 2000).

Medicaid reimbursement levels from 1999 included in the analyses (as external factors) were obtained from a published source (Grabowski et al. 2004). Additional information for 2000 through 2005 came from primary data collected by the authors.

Model Specification

Table 1 lists the internal, organizational, and external variables, along with their definitions, which are used in this analysis. We used quality of care-deficiency citations as the quality indicator. Deficiency citations were recommended for use by the Institute of Medicine (2001), are readily available, frequently used by researchers (e.g., Harrington et al. 2000), and are used as the basis of the quality information in many nursing home report cards (Castle and Lowe 2005). Deficiency citations indicate whether or not facilities meet regulatory standards (Tsoukalas et al. 2006). However, they do differ in scope and severity and in the areas of care they address (Tsoukalas et al. 2006).

Table 1: Dependent and Independent Variables

<i>Variable</i>	<i>Operational Definition</i>
Dependent variable	
Closure	If facility closed (1)* or not (0) from 1999 to 2005
Independent variables of interest	
Hospital affiliation	Whether the facility was owned and operated by a hospital (1) or not (0)
Medicaid reimbursement	The average reimbursement rate for Medicaid residents in the state (\$)
Medicaid occupancy	Average daily Medicaid occupancy rate
Quality indicator	Quality of care-deficiency citations. [†] We used within-state rankings (percentiles) for the analyses
Competition	Herfindahl Index. That is, each facility's percentage share of beds in the county/squared market shares of all facilities in the county (0–1). Higher values indicate a less-competitive market
Occupancy rate	Average daily resident occupancy rate
Other independent variables	
Internal factors	
Nurse aide staffing	FTE nurse aides per 100 residents
LPN staffing	FTE LPNs per 100 residents
RN staffing	FTE RNs per 100 residents
Resident case-mix	The score for three ADLs (eating, toileting, and transferring) constructed by giving a score of 1 for low assistance, 2 for moderate assistance, and 3 for high need for assistance summed for each ADL
Organizational factors	
Bed size	Number of beds in the nursing home
Ownership	For-profit (1) or not-for-profit (0) ownership
Chain membership	Whether member of a nursing home chain (1) or not (0)
New facility	If the facility opened (1) or not (0) from 1999 to 2005

*Coding used for analyses.

[†]F-tag 309, facility must provide the necessary care and services for each resident to attain or maintain the highest practicable well-being; F-tag 310, a resident's abilities in the ADL must not diminish unless clinical conditions make it unavoidable; F-tag 311, facility must provide appropriate treatment and services to maintain or improve residents' abilities in the ADL; F-tag 312, residents who are unable to perform ADL must receive necessary services to maintain good nutrition, grooming, and hygiene; F-tag 314, facility must ensure that residents entering facility without pressure sores do not develop sores and that residents with sores receive necessary treatment to promote healing, prevent infection, and prevent new sores; F-tag 316, incontinent residents must receive treatment and services to prevent urinary tract infections and restore as much normal function as possible; F-tag 317, residents who enter the facility without a limited range of motion must not experience a decline, unless clinical conditions make it unavoidable; F-tag 318, residents with a limited range of motion must receive appropriate treatment to increase range of motion or prevent further decline; F-tag 319, residents who display mental or psychosocial problems must receive appropriate treatment and services to correct assessed problems; F-tag 321, residents who have been able to eat alone or with assistance must not be fed by nasogastric tubes, unless clinical conditions make it unavoidable; F-tag 322, residents who are tube fed must receive appropriate treatment to prevent aspiration, vomiting, and other complications; if possible, restore normal eating skills; F-tag 323, facility must ensure resident environment is as free of accident hazards as is possible; F-tag 324, facility must ensure that each resident receives adequate supervision and assistance devices to prevent accidents; F-tag 325, facility must ensure that each resident maintains acceptable parameters of nutritional status, such as body weight; F-tag 328, facility must ensure that residents receive necessary treatment and specialized services; F-tag 329, residents have the right to be free from unnecessary drugs; F-tag 330, residents must not be given antipsychotic drugs unless needed to treat a specific condition diagnosed and documented in the clinical record; F-tag 333, facility must ensure that residents are free of any significant medication errors; F-tag 353, facility must have sufficient nursing staff to provide services to attain or maintain the highest practicable well-being for each resident.

FTE, full-time equivalent; ADL, activities of daily living; RNs, registered nurses; LPNs, licensed practical nurses.

Following other research using deficiency citations, we use a group of deficiency citations labeled quality of care citations (listed in the footnote to Table 1) because they are believed to be most closely related to resident care (Harrington et al. 2000).

Analyses

The dependent variable in our analysis is facility closure and the independent variables of interest are the internal, organizational, and the external factors discussed above. We used a discrete-time logistic regression to assess the impact of the independent variables on closure. This model calculates each independent variable's effect on the relative odds of closing (coded as 1) versus not closing (coded as 0). The computational formula for the discrete time logit is as follows. Let P_{it} be the conditional probability that facility i closed at time t , given that the closure has not already occurred to that facility. In this model, P_{it} is related to the covariates by a logit-regression equation:

$$\text{Log}(P_{it}/(1 - P_{it})) = \alpha_t + \beta_1 x_{it1} + \cdots + \beta_k X_{itk}$$

where i is the facility index and t the time point. The left side of the equation is the logit of P_{it} while the right side is the linear function of the covariates plus a constant term, α_t .

We used a discrete time approach for several reasons. First, it corresponds to the form in which the data are collected. Discrete time analysis recognizes that OSCAR assessments represent a series of snapshots, each taken at a point in time. Each assessment can be described in terms of the time that has elapsed since the last assessment and in relation to a facility closure. Second, discrete time models easily accommodate time-varying covariates. Moreover, the discrete time logit model uses maximum likelihood methods for estimation (partial likelihood is used in Cox models). Maximum likelihood estimation is advantageous for challenging features of the data (e.g., discrete time, tied data, time-dependent covariates, and truncated data) and is well suited for large datasets (Allison 1995).

We applied the Huber–White robust estimator to all our standard errors to address correlated errors resulting from multiple observations from each nursing home. In addition, to account for time trends in both the risk of closure and in the association between closure and some of the dependent variables of interest, a time trend and a series of interaction terms with the time trend are included in the analyses. The time trend is coded as 1 in 1998, 2 in 1999, and so forth. If an interaction of a variable with time is significant, the implication is that the odds ratio of that variable changes significantly over time.

RESULTS

Table 2 presents descriptive statistics of the nursing homes that were in existence in 1999, depending on whether they had closed or remained open between 1999 and 2005. We found that 1,789 nursing homes had closed between January 1, 1999, and June 1, 2005. This represents 1.9 percent of the facilities closing per year. We also note that 2,034 nursing homes opened over the same time period; however, only 23 percent of these new facilities were in the same market as the closed facilities.

In a bivariate comparison, those nursing homes that closed were smaller, were less likely to be for profit, had a lower occupancy rate, were more likely to

Table 2: Descriptive Statistics of Closed Nursing Homes and Facilities in Constant Operation from 1999 to 2005

Variables	<i>Closed</i> [†]		<i>Not Closed</i> [‡]	
	Mean (or %)	Standard Deviation	Mean (or %)	Standard Deviation
Independent variables of interest				
Hospital-based facility	27%	—	10%*	—
Average Medicaid reimbursement rate (\$)	91.97	22.62	94.20*	24.37
Average Medicaid resident occupancy	63.65%	25.19	56.91%*	34.95
Quality of care-deficiency citations	7.01	7.75	6.52*	7.12
Competition (Herfindahl Index)	0.159	0.198	0.215*	0.244
Average occupancy rate	77.01%	21.23	85.43%	16.59
Other internal factors				
FTE nurse aides/100 residents	32.45	16.07	32.31	13.86
FTE LPNs/100 residents	13.31	12.55	10.90*	8.46
FTE RNs/100 residents	11.53	16.32	6.38*	9.16
Resident case mix (ADL score)	1.61	0.84	1.72	0.76
Other organizational factors				
Bed size (number of beds)	81.22	73.33	110.35*	73.48
For-profit ownership	61%	—	67%*	—
Member of a chain	53%	—	52%	—

[†]N = 1,789 facilities (based on the 1999 data).

[‡]N = 11,652 facilities (based on the 1999 data).

*Difference between closed and nonclosed facilities is significant at $p < .001$.

Note: during the study period, 2,034 nursing homes opened. These are included in the multivariate analyses. Also, the figures presented are for the baseline 1999 data. Thus, the closed column represents the 1999 values for any nursing home that closed from 1999 through 2005, whereas the not closed column represents the 1999 values for any nursing home in constant operation during this same period. The baseline figures are presented for parsimony.

FTE, full-time equivalent; ADL, activities of daily living; RNs, registered nurses; LPNs, licensed practical nurses.

Table 3: Discrete Time Logistic Regression Analyses Comparing Closed and Nonclosed Nursing Homes from 1999 to 2005

	<i>Main Effect</i>		<i>Interaction with Time Trend</i>	
	<i>Coefficient</i>	<i>p-value</i>	<i>Coefficient</i>	<i>p-value</i>
Independent variables of interest				
Hospital-based facility	1.010	<.0001		
Medicaid reimbursement rate	-2.770	<.0001	0.130	.002
Medicaid resident occupancy	-0.719	.017	0.222	.005
Medicaid reimbursement rate × Medicaid resident occupancy rate	0.201	.001	-0.041	.011
Quality of care-deficiency citations	0.288	<.001	0.029	.103
Competition (Herfindahl index)	0.533	<.001	-0.044	.077
Occupancy rate	-0.519	<.001	-0.023	.151
Other internal factors				
FTE NAs/100 beds	-0.057	.219	0.005	.677
FTE LPNs/100 beds	-0.005	.933	-0.003	.830
FTE RNs/100 beds	0.085	.117	0.015	.290
Resident case mix (ADL score)	-0.114	.242	0.011	.661
Other organizational factors				
Bed size	-1.045	<.001		
For-profit ownership	-0.107	.194		
Chain membership	0.299	<.001		
New facility	0.429	.001		
Intercept and time trend	10.532	<.001	0.073	.759

N= 173,219 observations.

All continuous variables are divided by their standard deviation.

Time trend = 1 in 1998, 2 in 1999, and so forth through 2005.

State dummies also included (not shown).

p-values use standard errors adjusted using the Huber-White robust estimator.

FTE, full-time equivalent; ADL, activities of daily living; RNs, registered nurses; LPNs, licensed practical nurses; NAs, nurse aides.

be hospital based, had a higher percent Medicaid residents, had more Licensed Practical Nurses per 100 residents, had more quality of care citation deficiencies, and had a lower Medicaid reimbursement rate (see Table 2).

Results from the discrete-time logistic regression are shown in Table 3. We provide the logistic coefficients on the main effects for each variable and on the interactions with the time trend for variables for which we wish to investigate the changing association with closure probability over the 7-year period for which we have data. The main effects are the effect of each variable in 1998. The coefficient on the time trend itself is not significantly different

from zero, suggesting that all the change in the closure rates over time can be accounted for by changes in the explanatory variables and changes in their coefficients. Although this table is useful for presenting the statistical significance of the coefficients, we convert these coefficients to odds ratios for ease of interpretation.

Table 4 presents the odds ratios. For continuous variables, we present the adjusted odds ratio (AOR) associated with a 1-standard deviation increase in the variable. We present the AORs at three points in time—the first year, the middle year, and the final year of our data. Our interaction of some of the variables with a linear time trend implies that the estimates for the omitted years lie in the interval between the estimates for the years that we report.

For the organizational factors, bed size (AOR 0.35; $p \leq .001$) was significant, suggesting that small facilities were more likely to close than large facilities. Chain membership was significantly associated with closure (AOR 1.35; $p \leq .001$). New facilities were significantly more likely to close (AOR 1.54; $p \leq .001$). None of the staffing measures were significantly associated with closing nor did their associations change over time.

Quality of care–deficiency citations and occupancy were the internal factors of interest that were significantly associated with nursing home closure (we discuss percent Medicaid residents below with its interaction with Medicaid reimbursement rates). In 1999, the likelihood of closing was significantly higher for facilities with more quality of care citations (AOR 1.413, $p \leq .001$) and remained relatively stable throughout the period. As shown in Table 3, the increase over time in this relationship was not statistically significant ($p = .103$). Higher occupancy was associated with a lower likelihood of facility closure (AOR 0.568, $p \leq .001$), and this relationship was also relatively stable over time.

Hospital affiliation was the organizational factor of interest that was significantly associated with nursing home closure. Hospital-based facilities were more than twice as likely to close (AOR 2.746, $p \leq .001$) than freestanding facilities.

For the external factors of interest, competition from other nursing homes was significantly associated with nursing home closures in 1999 (AOR 1.559; $p < .001$). Higher levels of competition from other nursing homes were associated with an increased likelihood of nursing home closures, but this relationship was decreasing over time and was not significant in 2005.

The association of percent Medicaid residents and closure changed significantly over time. It was not significant in the early part of the time frame but had a significant positive association with closures by 2005 (AOR 1.991;

Table 4: Results Showing Discrete Time Logistic Regression Analyses-Adjusted Odds Ratios Comparing Closed and Nonclosed Nursing Homes from 1999, 2002, and 2005

	Year		
	1999 AOR (95% CI)	2002 AOR (95% CI)	2005 AOR (95% CI)
Independent variables of interest			
Hospital based [†]	2.746* (2.174, 3.469)	2.746* (2.174, 3.469)	2.746* (2.174, 3.469)
Medicaid reimbursement rate [‡]	0.103* (0.073, 0.146)	0.120* (0.084, 0.170)	0.138* (0.092, 0.208)
Medicaid resident occupancy [§]	1.089 (0.936, 1.267)	1.473* (1.235, 1.756)	1.991* (1.401, 2.828)
Quality of care-deficiency citations	1.413* (1.303, 1.533)	1.541* (1.427, 1.664)	1.681* (1.427, 1.981)
Competition (Herfindahl Index)	1.559* (1.360, 1.786)	1.364* (1.237, 1.505)	1.194 (0.968, 1.474)
Occupancy rate	0.568* (0.527, 0.613)	0.530* (0.493, 0.571)	0.495* (0.426, 0.576)
Internal factors			
FTE NAs/100 beds	0.954 (0.904, 1.007)	0.968 (0.920, 1.018)	0.982 (0.883, 1.092)
FTE LPNs/100 beds	0.988 (0.920, 1.061)	0.978 (0.906, 1.055)	0.968 (0.827, 1.132)
FTE RNs/100 beds	1.122* (1.054, 1.195)	1.175* (1.095, 1.261)	1.230* (1.066, 1.420)
Resident case mix (ADL score)	0.912 (0.814, 1.021)	0.941 (0.844, 1.049)	0.972 (0.775, 1.228)
Organizational factors			
Bed size [†]	0.352* (0.313, 0.396)	0.352* (0.313, 0.396)	0.352* (0.313, 0.396)
For-profit ownership [†]	0.898 (0.764, 1.056)	0.898 (0.764, 1.056)	0.898 (0.764, 1.056)
Chain membership [†]	1.348* (1.176, 1.545)	1.348* (1.176, 1.545)	1.348* (1.176, 1.545)
New facility [†]	1.536* (1.182, 1.995)	1.536* (1.182, 1.995)	1.536* (1.182, 1.995)

N = 173,219 observations.

*Significant at a 5% level.

[†]Variable assumed to have constant impact throughout the 1999–2005 time period.

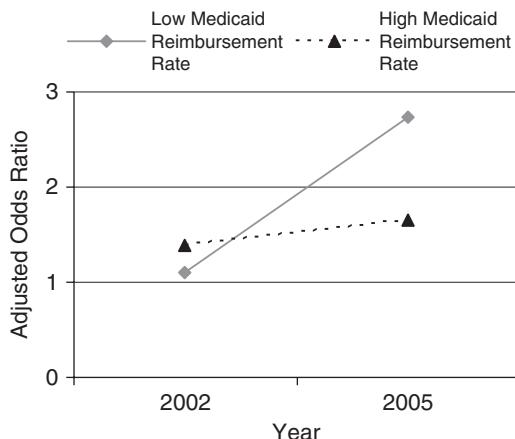
[‡]Adjusted odds ratio for the Medicaid reimbursement rate incorporates the interaction with Medicaid resident occupancy and is evaluated at the mean value for Medicaid resident occupancy.

[§]Adjusted odds ratio for the Medicaid resident occupancy incorporates the interaction with Medicaid reimbursement rate and is evaluated at the mean value for Medicaid reimbursement rate.

All continuous variables are divided by their standard deviation. State dummies also included (not shown).

FTE, full-time equivalent; ADL, activities of daily living; RNs, registered nurses; LPNs, licensed practical nurses; NAs, nurse aides; AOR, adjusted odds ratio; CI, confidence interval.

Figure 2: Association of Medicaid Occupancy Rate and Closure



Notes: Odds ratio reflects the association between a 1 standard deviation increase in Medicaid occupancy and the probability of nursing home closure.

Low Medicaid reimbursement rate is set to \$60 per day. High Medicaid reimbursement rate is set to \$120 per day. These amounts are approximately 1 standard deviation lower and higher, respectively, than the average reimbursement rate. All amounts are adjusted for inflation, using 2000 as the base year.

This figure reflects the interaction of Medicaid reimbursement rates and Medicaid occupancy rates in the closure logistic regression. The odds ratio with respect to Medicaid occupancy rate was approximately 1.2 for all nursing homes in 2002, regardless of their Medicaid reimbursement rate. By 2005, the odds ratio with respect to the Medicaid occupancy rate had increased for all nursing homes, but it had increased the most for nursing homes with low Medicaid reimbursement rates.

$p \leq .001$). We found that higher Medicaid reimbursement rates were significantly associated with fewer closures, but this relationship weakens somewhat over time.

We included an interaction of Medicaid reimbursement rates and Medicaid occupancy rates in the model in order to determine whether lower reimbursement rates had a bigger association with closure for facilities with a high percentage of Medicaid residents. In order to facilitate the interpretation of the interactions that allow for a complex association between Medicaid occupancy and closures as it changes over time and varies by level of Medicaid reimbursement, we present the time trends in the association for two levels of Medicaid reimbursement. Figure 2 shows that Medicaid occupancy 1

standard deviation above average was associated with approximately a 50 percent higher rate of closure in 2002, regardless of the Medicaid reimbursement rate. By 2005, such high Medicaid occupancy was associated with almost a three-fold higher closure probability for facilities with low Medicaid reimbursement rates, but less than a two-fold higher closure probability for facilities with high Medicaid reimbursement rates.

DISCUSSION

We found that 1,789 nursing homes, or 8 percent of the nursing homes that were in operation in 1999, had closed between 1999 to mid-2005. This indicated that approximately 2 percent of the facilities were closing each year. This rate of closure (using the same methodology) is considerably higher than the previously identified annual closure rate of 0.7 percent, which was experienced between 1992 and 1998 (Castle 2005b).

Policy Implications

Our results suggest that long-term care policies may have a significant influence on nursing home closures. These include policies related to nursing home payments and quality of care.

Nursing Home Payments. Medicare primarily pays for short-stay nursing home residents and accounts for approximately 12 percent of the nursing home revenues. However, these revenues are disproportionately distributed to facilities that specialize in providing short-term care. Hospital-based facilities primarily provide such care. The Medicare Prospective Payment, which replaced a nursing home cost-based system, was associated with a decrease in the Medicare payments to nursing homes by several billion dollars (Konetzka, Norton, and Sterns 2006). Some recent research has shown that these changes in Medicare payment may have adversely influenced quality of care (Zhang, Unruh, and Wan 2008). We are unable to directly examine the influence of these changes in Medicare payment, but our results suggest that the impact of these payment changes may have been most severe on hospital-based facilities, with these facilities having a higher likelihood of closure.

Some freestanding nursing homes specialize in providing short-term care, and most freestanding nursing homes receive some revenues from Medicare. Some research has shown that the Medicare Prospective Payment may have decreased the efficiency of these nursing homes (Zhang, Unruh,

and Wan 2008). However, in preliminary analyses, closures were not associated with Medicare resident occupancy rates. Thus, this variable was not included in the final analysis.

Medicaid payments account for approximately 50 percent of the nursing home revenues. Our results show that reductions in the state payment rates are associated with nursing home closures. As would be expected, facilities with a higher Medicaid occupancy are also most likely to close. Furthermore, our interaction of Medicaid occupancy, Medicaid reimbursement, and a time trend demonstrates that the largest increase in closure probability is for facilities with high Medicaid occupancy and low Medicaid reimbursement. These facilities are known to provide care disproportionately to the disadvantaged (i.e., nonwhite populations living in poor communities; Mor et al. 2004). As others have argued (Mor et al. 2004), policy alternatives (such as selectively increasing Medicaid vouchers, training programs for managers, and government rescues) may be needed to mitigate the decrease in the availability of nursing homes to the disadvantaged if these closures result in their not having access to services elsewhere.

Quality. We would expect lower quality facilities to close. Our results show that this may be the case. Deficiency citations issued by state/federal survey inspectors may have influenced closures. Still, the possibility exists that it may be that those nursing homes that seemed likely to close simply paid less attention to the certification survey. We are unable to ascertain the directionality of the impact of deficiency citations; however, in sensitivity analyses (not shown), using deficiency citations lagged by 2 years, closed facilities received more citations than nonclosed facilities. This provides some evidence that deficiency citations do, in fact, influence closures.

As discussed above, policies in this area have served to make this survey and certification process more uniform. However, the question still exists regarding how deficiency citations (and quality in general) influence facility closures. Policies that have led to an increase in public information on nursing homes may be the answer. Report cards, for example, may be important market forces in this area. Over the past 5 years, at least 19 states have developed state-based nursing home report cards, which allow consumers to identify the quality of care of facilities (Harrington et al. 2003). Of more importance, in November 2002, the federal nursing home report card, *Nursing Home Compare*, began making information on quality accessible to the public on a national scope (GAO 2002). We speculate that nursing home

report cards may influence some nursing home closures but, in our analyses, we were unable to quantify this influence.

We also noted that the aggregate difference in the number of deficiency citations received between closed and nonclosed facilities is only 0.49 citations. Although statistically significant, the practical significance of this finding would seem tenuous. However, no one measure of overall nursing home quality exists and quality indicators in general are known to have orthogonal relationships (Mor 2005). Thus, deficiency citations are somewhat imprecise proxies for overall quality, and this may be reflected in our findings. Still, it is notable that consistently receiving higher than average numbers of deficiency citations (as was the case for most closed nursing homes) is important for further oversight by CMS. For example, these facilities receive additional inspections as part of the Special Focus Facility Initiative (CMS 2008).

Limitations and Suggestions for Further Research

Consistent results of the earlier research were that small facilities, low occupancy facilities, high Medicaid occupancy, and high levels of competition were associated with closure. We also found that these factors were associated with a higher likelihood of closure. However, there are some differences between our results and those of the earlier studies. Prior analyses identified for-profit ownership to be associated with closure. Our findings show the reverse, with not-for-profit facilities being more likely to close. We are unable to explain this difference.

It is possible that potentially important quality-related variables that may be associated with nursing home closure are not included in the OSCAR data. Using more detailed quality indicators, such as those available from the Minimum Data Set, may lead to a deeper understanding of the association between closure and quality (although as noted above, no one measure of overall nursing home quality exists). A further limitation of our examination of quality is that we do not explicitly disentangle the causal direction between closures and quality.

The facility-level variables that have a significant association with closure probability may reflect unmeasured underlying issues that are the true causal agents. Furthermore, we only collected information on whether a nursing home closed. We did not capture many of the fine-grained details of the closure process. For example, we do not have any information on how long a facility was under threat of closure, when a facility began relocating

residents as part of the closure process, and whether some facilities under threat of closure remained in operation.

Our finding of a weakly significant increase in the association between low quality and closure suggests that increased availability of quality information might be having the desired effect of reducing the demand for low-quality facilities. Future research should examine whether this association increases more in states with more aggressive quality reporting activities such as detailed state report cards.

We suggest that occupancy rates have influenced nursing home closures. What are generically called “aging-in-place” programs may be important policy options influencing occupancy rates of nursing homes. For example, Home and Community Based Services (HCBS) Waiver Programs are notable policy options used to move elders away from institutional settings. The HCBS Waiver Program encourages states to “develop alternative options to institutional care for those in need of long-term care services” (U.S. Department of Health and Human Services 2002). In aggregate, these aging-in-place programs could lower occupancy rates for all nursing homes, which in turn may influence the profitability of all nursing homes. For some facilities, this may influence subsequent closure. However, we are unable to examine how much influence aging-in-place programs have had on nursing homes.

A further issue, yet to be examined, is the location of the closed facilities. Access may be influenced if closed nursing homes are sole providers to a community. Moreover, if nursing homes in under-served areas are more likely to close, the known disparities in nursing home care may be further worsened (Mor et al. 2004). Nursing home closures may also be influenced by management. For example, poor facility management may cause poor quality and this same poor management may be unable to keep the facility viable. Examining the role of management may also provide a productive avenue for future research.

CONCLUSION

The purpose of this research was to examine nursing home closures. This is important to understand the impact of regulation and the general state of the industry on nursing home closures. Moreover, closing facilities may have a profound influence on the lives of the current residents (Castle 2005c) and access for future residents. Policies that have likely influenced nursing home closures include Medicaid payment rates, Medicare Prospective Payment System, HCBS waivers, and report cards.

The types of facilities most likely to close include hospital-based facilities, those with a high Medicaid census, low occupancy, and/or poor quality. Most significantly, facilities with high Medicaid occupancy rates and low Medicaid reimbursement rates are most likely to close. It is important to emphasize that the associations between these characteristics and an elevated odds of closure may reflect unmeasured underlying issues rather than a causal relationship. States are actively debating on how to “redistribute” long-term care services/dollars. Some policies, such as HCBS, clearly benefit elders and facilitate their wish to avoid or delay institutionalization. However, our findings show they should be cognizant of the potential these decisions have for facilitating closure of nursing homes (and the impact on residents).

This research also suggests the need for a better understanding of the full cost of closing a facility. Past research has shown that resident relocation at the time of facility closure exacts a great cost on individual residents in terms of deterioration of health status and the need for additional assistance by family members. Our finding that closures are most likely among facilities with low quality and high Medicaid occupancy suggests that these additional costs may be imposed on residents (and family) least able to bear them. Further research should be undertaken on the differential affect of closing on residents with different economic means and support systems.

More nursing homes will likely close in the future. We do not address whether these closures should occur. In some cases, an argument could be made that closing some nursing homes may be beneficial (e.g., those of low quality), while in other cases, an argument could be made that closing other facilities may lead to disparities in care (e.g., for Medicaid residents). Thus, policy makers should be cognizant not only of the numbers of facilities that are closing but also the types of nursing homes that are closing.

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Geographic Concentration and Correlates of Nursing Home Closures: 1999–2008

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Abstract

Background—While demographic shifts project an increased need for long-term care for an aging population, hundreds of nursing homes close each year. We examine whether nursing home closures are geographically concentrated and related to local community characteristics such as the racial and ethnic population mix and poverty.

Methods—National Online Survey Certification and Reporting data were used to document cumulative nursing facility closures over a decade, 1999 through 2008. Census 2000 zip code level demographics and poverty rates were matched to study facilities. The weighted Gini coefficient was used to measure geographic concentration of closures, and geographic information system maps to illustrate spatial clustering patterns of closures. Changes in bed supply due to closures were examined at various geographic levels.

Results—Between 1999 and 2008, a national total of 1776 freestanding nursing homes closed (11%), compared with 1126 closures of hospital-based facilities (nearly 50%). Combined, there was a net loss of over 5% of beds. The relative risk of closure was significantly higher in zip code areas with a higher proportion of blacks or Hispanics or a higher poverty rate. The weighted Gini coefficient for closures was 0.55 across all metropolitan statistical areas and 0.71 across zip codes. Closures tended to be spatially clustered in minority-concentrated zip codes around the urban core, often in pockets of concentrated poverty.

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Conclusions—Nursing home closures are geographically concentrated in minority and poor communities. Since nursing home use among the minority elderly population is growing while it is declining among whites, these findings suggest that disparities in access will increase.

Regulatory oversight, reinforced by market forces and an increased focus on transparency and public reporting, is designed to eliminate poorly performing nursing homes.^{1–3} A small fraction of US nursing homes closes each year (not more than 2%). Perhaps this is a desired outcome, since closure is the ultimate indicator of performance failure.⁴ However, the operation of regulatory efforts and market forces are not likely to result in random distribution of closures. Rather, some facility types will be affected more than others.^{3–10} Equally important is whether closures are geographically concentrated such that their impact will not be uniform but instead will disproportionately affect certain communities and population subgroups more than others.

Within any particular community, the closure of just a few facilities could escalate anxiety among concerned family members (as well as state and local officials) owing to the negative effects of transfer trauma on frail elderly residents.^{11–14} Nursing home closures have been portrayed as “smoke without fire,” in that efforts are often taken to avoid public panic or a media frenzy over their potentially adverse consequences.⁸ Not surprisingly, federal and state regulators tend to be reluctant to close poorly performing facilities.¹⁵

A number of previous studies have examined risk factors associated with nursing home closures, focusing on structural and organizational characteristics of the facility.^{3–10} These studies have generally identified poor financial and quality performance as the most important and consistent antecedents of nursing home closure. In particular, closed facilities were more likely to have experienced financial troubles, lower occupancy, and a less profitable payer mix than non-closed facilities (eg, more Medicaid-supported and fewer private-paying or Medicare-supported residents); they were also likely to have received more inspection deficiency citations prior to closure. These attributes are typical of facilities ranked in the lower tier of all nursing home providers based on available resources and quality-of-care problems.¹⁶

Market factors and major policy shifts appear to have influenced nursing home closure as well. Facilities located in more competitive markets (as indicated by a greater number of nursing homes or more vacant beds) are more likely to close,^{3,6,8,9} and those with insufficient management and strategic planning expertise are less able to respond to exogenous policy shocks. For example, following the introduction of the federal Medicare prospective payment system (PPS) for nursing homes in 1998, there was an increase in closures.^{4,7} The shift to state-based Medicaid case-mix reimbursement for nursing homes has also precipitated closure.⁴ In addition, closures were more likely to occur among facilities in states providing lower Medicaid nursing home reimbursement rates.^{4,9}

Herein, we document nursing home closures reported over the decade between 1999 and 2008 to better understand the geography of nursing home closures. Specifically, we address 2 questions: (1) Are nursing home closures geographically patterned or concentrated? (2) Are closures related to local community characteristics such as the racial and ethnic population mix or the level of concentrated poverty?

METHODS

DATA SOURCES

We used the Online Survey Certification and Reporting (OSCAR) database, covering the period 1999 through 2008. The OSCAR database contains facility-level aggregate

information, including measures of nursing home performance, staffing, organizational characteristics, and resident characteristics for all Medicare/Medicaid–certified nursing homes in the United States. The OSCAR data are facility self-reported and reviewed under a Centers for Medicare and Medicaid Services (CMS) protocol stipulated for annual inspection and certification. Since this is a federally mandated data source, except for a few nonparticipating, exclusively private-pay facilities, virtually all licensed nursing homes in the United States are included in the OSCAR database, with ascertainment approaching 100% per year.

Of primary interest to this analysis is the information recorded in OSCAR surveys concerning facility terminations from the Medicare/Medicaid programs, which is used herein to identify closures. We identified a total of 18 259 unique nursing homes over the period 1999 through 2008 from all 50 US states and the District of Columbia. Of these, 15 998 were freestanding facilities (88%), and 2261 were hospital based (12%); 12 635 were located in urban counties (69%) and 5624 in rural counties (31%).

We used the 2000 US census data to define geographic boundaries and map nursing home closures at the state, metropolitan statistical area (MSA), and zip code levels. Zip code level population data on racial and ethnic composition and poverty (from Census 2000) were matched to study facilities to determine whether nursing home closures were related to zip code level minority and poverty concentrations. This study was exempt from institutional review board review because no individual-level information was involved, and all data analyzed were from public sources.

IDENTIFICATION OF NURSING HOME CLOSURES

We defined nursing home closure as termination from the Medicare/Medicaid programs (either voluntarily or involuntarily), based on termination codes recorded in OSCAR over the period 1999 through 2008. Although these codes were not detailed enough to differentiate more specific reasons for closure, previous research found that most terminations were voluntary, with little difference between voluntary and involuntary closures with respect to occupancy, staffing levels, or deficiency citations identified during inspection.³ Though rare, a facility might be terminated from and later reinstated in the OSCAR system. To avoid such “nonclosures,” we calculated the number of months that elapsed from the date of the last survey for that facility appearing in the OSCAR database through December 31, 2008—the end point of our observation period. If this gap exceeded 18 months, then the facility was classified as permanently closed; otherwise, the facility was deemed closed with no additional information available to ascertain permanency of the closure ($n=356$ or 1.95% of total facilities). There were also cases where a facility’s OSCAR records indicated no termination, but the gap between the date of its last survey and December 31, 2008, was at least 18 months; such facilities were classified as closures in this analysis ($n=172$ or 0.94%). The 18-month follow-up window is 3 months beyond the maximum 15-month interval between 2 successive standard surveys, as mandated by CMS in the current nursing home inspection process.

STATISTICAL ANALYSIS

We created an indicator for whether a facility was closed over the 10-year period 1999 through 2008 and tabulated freestanding and hospital-based facilities separately. Closures are presented as total counts and as the percentage of all nursing homes; the percentage measure is referred to as the *cumulative rate of closures*. Results were first summarized at the national level, then by region, state, MSA, and 5-digit zip code.

We calculated the Gini coefficient, weighted by the total number of ever-existing nursing homes in an area, to measure the extent of geographic concentration (or inequality in distribution) of closures across all MSAs and zip codes containing at least 1 nursing home during the study period. The weighted Gini coefficient ranges from 0 to 1; a value closer to 0 indicates a more equal distribution (ie, less concentration), and a value closer to 1 indicates a more unequal distribution (ie, higher degree of concentration). Furthermore, we used geographic information system mapping tools to visualize the geographic patterns of nursing home closures at the state level as well as spatial clustering of closures across zip codes within selected MSAs. In addition, we calculated the relative risk (RR) of closure among facilities located in zip codes with a higher proportion of minority populations or poverty rate compared with those in zip codes with the lowest proportion (bottom quartile) of minorities or poverty rate. Finally, we tallied the number of beds lost due to closures, beds added by new openings, and the resulting net change in bed supply at various geographic levels over the study period.

RESULTS

NURSING HOME CLOSURES AT THE NATIONAL LEVEL

Figure 1 illustrates the broad national trends in nursing home closures and new openings since 1993, setting the stage for a detailed analysis of closures in the decade from 1999 through 2008. The annual rate of nursing home closures increased during the pre-PPS years (before 1999), peaked during the PPS shakeout period (1999–2002), and declined gradually in subsequent years. This trend is most evident among hospital-based facilities. Between 1993 and 1999, the annual rate of new openings of hospital-based nursing homes exceeded the rate of closures by a large margin. However, in 1999, this trend reversed. In fact, from 1999 through 2008, there has been a net decline in the number of nursing homes (both hospital-based and free-standing) due to more closures than new openings. The cumulative total number of beds lost due to facility closure was estimated at 184 264 (or 10.1% of all ever-existing beds) over this 10-year period, most of which were in closed freestanding rather than hospital-based facilities. In contrast, only 87 362 beds (or 4.8%) were added due to new facility openings over the same period, resulting in a cumulative net loss of 96 902 (or over 5%) beds (eTable [<http://www.archinternmed.com>]).

Between 1999 and 2008, a total of 2902 nursing homes closed, or nearly 16% of all Medicare/Medicaid-certified facilities (Table 1). The cumulative closure rate was substantially higher in hospital-based facilities than in freestanding ones (50% vs 11%). Urban hospital-based facilities had the highest cumulative closure rate (60%). The closure rate among freestanding facilities was roughly the same in urban (11%) and rural (10%) areas.

REGIONAL AND INTERSTATE VARIATIONS

The overall cumulative closure rate was highest in the South (18%) and West (17%) and lowest in the Northeast and Midwest (14% for both) (Table 1). At the state level, the overall rate of closures varied more widely, ranging from roughly 5% in both Wyoming and South Dakota to 28% in Nevada and 30% in Oklahoma (Figure 2). There was a similar pattern with respect to the percentage of beds closed, with all 4 regions and most states within each region sustaining a cumulative net loss of nursing home beds due to facility closure over the study period (eTable).

CONCENTRATION OF NURSING HOME CLOSURES ACROSS MSAs

The weighted Gini coefficient for overall nursing home closures was 0.55 across all MSAs, suggesting an uneven geographic distribution of closures. Table 1 lists the 5 MSAs with the

greatest number of cumulative total closures within each region. Boston ranked the highest in the cumulative total number of closures (87 closures or 25% of all facilities) among all MSAs in the Northeast and nationally as well. Within the regional list, the highest number of closures occurred in Chicago in the Midwest (49 closures or 13%), Dallas in the South (48 closures or 29%), and Los Angeles–Long Beach in the West (62 closures or 14%). In relative terms, all but a few of those 20 MSAs listed in Table 1 had their percentage of closures well above the regional or all-MSA average percentage of closures.

A ZIP CODE VIEW OF NURSING HOME CLOSURES

Since MSAs vary a great deal in size and socioeconomic characteristics, significant variations in nursing home closures might be hidden within the boundaries of each MSA. To reveal local community-level dynamics of nursing home closures, we focused the analysis on zip codes. A total of 9762 unique zip codes were identified, each containing at least 1 nursing home. The weighted Gini coefficient for the distribution of closures across all zip codes was 0.71, revealing a much more uneven distribution of closures at the community level than at the MSA level.

In Table 2, we summarize the association between nursing home closure and zip code level racial and ethnic population mix and poverty as well as the estimated net loss of beds due to closures, tabulated separately for freestanding and hospital-based facilities. Among free-standing facilities, the RR of closure in zip codes with the highest percentage of blacks (top quartile) was 1.38 (95% confidence interval [CI], 1.21–1.58) times greater than in zip codes with the lowest percentage of blacks (bottom quartile). Similarly, freestanding facilities in the top quartile of Hispanic zip codes were 1.37 (95% CI, 1.20–1.56) times as likely to close as those in the bottom quartile. The RR of closure in zip codes with the highest level of poverty (top quartile) was more than double that in zip codes with the lowest (bottom quartile) poverty rate (RR, 2.01; 95% CI, 1.76–2.29). Similar patterns of association were observed in hospital-based facilities.

Table 2 also lists both a greater number and percentage of net lost beds due to facility closures in zip codes with a higher proportion of minorities or higher poverty rates. Although hospital-based nursing homes lost a much greater percentage of both facilities and beds than freestanding homes over the study period, a great majority of both closed facilities and closed beds came from freestanding nursing homes. (Also see the eTable for hospital-based to freestanding ratios in facility closures and lost beds.)

In Figure 3, we present maps to depict the spatial pattern of nursing home closures associated with selected zip code characteristics. Nursing home closures were largely clustered in zip codes with higher proportions of minority populations. Furthermore, these zip codes were typically clustered around neighborhoods close to the urban core, most often in pockets of concentrated poverty.

We conducted an analysis at the zip code level to calculate the distance from the centroid of each zip code to the nearest operating nursing home with Medicare/Medicaid–certified beds, separately for 1999 and 2008. We used this distance as a proximate measure of access barrier, since most older people (and their families) prefer a convenient location when searching for and selecting a long-term care facility.¹⁷ Results reveal that in zip codes in which at least 1 nursing home closed from 1999 through 2008, the nearest distance to an operating facility increased from 2.73 (95% CI, 2.59–2.87) miles in 1999 to 3.81 (95% CI, 3.58–4.04) miles in 2008, on average, by an additional 1.08 (95% CI, 0.91–1.25) miles or 39.6%. In contrast, this distance was shortened slightly in zip codes without any nursing home closure, by –2.8%, from 3.20 (95% CI, 3.11–3.29) to 3.11 (95% CI, 3.02–3.19) miles. Similarly, in the poorest quartile of zip codes (ranked by poverty rate), this nearest distance

increased by 10.4%, from 3.45 (95% CI, 3.26–3.64) to 3.81 (95% CI, 3.59–4.03) miles, in contrast to a much smaller increase in the remaining zip codes of 4.7%, from 2.97 (95% CI, 2.89–3.04) to 3.11 (95% CI, 3.02–3.20) miles. Finally, in zip codes with the highest percentage of minorities (top quartile), this distance increased by 6.7%, from 2.98 (95% CI, 2.79–3.18) miles to 3.18 (95% CI, 2.97–3.39) miles, which was roughly the same as in the remaining zip codes, by 6.4%, from 3.12 (95% CI, 3.05–3.20) to 3.32 (95% CI, 3.23–3.41) miles.

COMMENT

UNEQUAL HIT: GEOGRAPHIC DISPARITIES IN NURSING HOME CLOSURE

Our analysis reveals that between 1999 and 2008, nearly 16% of all certified nursing home facilities in the United States closed, accompanied by a cumulative net loss of more than 5% of beds. Importantly, we find compelling evidence that closures are unevenly distributed geographically. The hardest hit communities with multiple closures were often those with the greatest concentration of racial and ethnic minority populations and poverty. Previous studies have found that lower-tier nursing homes, characterized by limited resources, reliance on Medicaid, poor performance, and lower-quality care,¹⁶ are most likely to serve poor and nonwhite populations, both African Americans and Hispanics,^{18,19} and are at greatest risk of closure.^{4,6,20} In addition, our results suggest that over the 10 years of the study period, the distance to the nearest operating nursing home has increased significantly for those living in zip codes where there was a closure compared with those without any closure. More importantly, this distance increased more substantially in poor and minority zip codes than in nonpoor and nonminority zip codes. It should be noted that our distance measure used mileage “as the crow flies,” which could be quite different from real distance by car or public transit lines. Combined, these patterns raise concerns that nursing home closures disproportionately affect the access that minority older populations residing in poor neighborhoods have to any nursing home care, much less high-quality care.

Since most failed nursing homes experience a downward spiral in financial and quality performance before their eventual closure, one might argue that the demise of such facilities is not necessarily a concern. In support of this argument, nursing home occupancy rates have dropped in most long-term care markets in recent years (<http://LTCFocUS.org>). However, in the broader context of structural and socioeconomic disparities and persistent racial residential segregation, the clustering of nursing home closures in poor and minority-concentrated urban neighborhoods is troubling. This phenomenon, arguably, resembles similar dynamics of inequalities in public schools, housing, environmental decline, and other sectors. It is likely that better-performing nursing homes located in more prosperous suburban neighborhoods will increasingly “skim the cream” (ie, private pay and problem-free patients) from the underresourced urban facilities, thereby accelerating their death spiral and the decline of inner-city areas in which these troubled facilities are located.

POLICY IMPLICATIONS

The current analysis reinforces previous work^{16,21} that has identified the considerable risk residents of lower-tier facilities face in terms of disparities in access and quality of care that would eventually place them in “triple jeopardy.” That is, those in need of long-term care in this tier are more likely (1) to be placed in substandard facilities, (2) to live in areas of increased closures, thereby limiting their access to nursing home care; and (3) to live in areas with limited home- and community-based alternatives to nursing home care.²²

In addition, recent research has documented the increasing use of nursing homes among minority elderly people.¹⁹ The demand for long-term care is likely to rise as the minority older population continues to grow rapidly in the near term. Combined, all these forces are

likely to exacerbate the problem of nursing home access for those in greatest need who reside in disadvantaged neighborhoods. Superimposed on these disparities is the ongoing effort of most state Medicaid programs to control their costs by shifting Medicaid recipients who qualify for nursing home care to home- and community-based alternatives. As these “rebalancing” efforts continue to grow and competition with noninstitutional health care providers intensifies, it is likely that more nursing homes will close in the years to come.

A similar shift to community mental health services was to have occurred with the closure of state psychiatric hospital systems concurrent with the implementation of the Medicare and Medicaid programs.²³ Medicare and Medicaid offered the opportunity to shift states’ costs for psychiatric care onto the federal government if provided outside state institutions. These efforts were often hastily planned, and the supply of community-based care options did not meet the demand created by deinstitutionalization. This resulted in unintended adverse consequences for the recipients of care, their families, and communities. There is reason for concern that we may face a similar problem in long-term care.

Ultimately, a fuller picture of the impact of nursing home closures must include information on all nursing home alternatives. Of particular concern is the lack of a national database, comparable to the OSCAR database, on nursing home alternatives. We cannot fully map long-term care markets at either the MSA or zip code level without national historical and locational data on assisted living facilities, home health services, or adult day care services. Without a complete appreciation of the impact of nursing home closures on residents and local long-term care markets, our ability to select among these and other options will be short-sighted and ineffective.

LIMITATIONS

The OSCAR data we relied on to identify closures may contain reporting errors. Thus, it is possible that our accounting of closed facilities is incomplete. However, no definitive records of closures currently exist from either government or industry.^{8,12} We should also note that our definition of *closures* is based on termination from the Medicare/Medicaid programs, and in some relatively rare cases, facilities may continue to operate by converting to assisted-living facilities or simple board and care homes. With relatively few exceptions, these facilities rely solely on private payments and often have restrictions as to the maximum level of impairment of their residents. The net result is that access for impaired people who reside in nursing homes is reduced when a facility is decertified. Although beyond the scope of the current analysis, the potential impact of nursing home closures on both the displaced residents and local communities warrants close monitoring. Additional research and policy discussions are necessary to fully gauge and mediate this impact.

In conclusion, nursing home closures tend to be geographically concentrated in minority and poor communities. The cumulative loss of nursing facility beds in the aftermath of closures, combined with the lack of alternative long-term care services in these disadvantaged communities and increasing use of nursing homes among minority elderly people, suggests that disparities in access will increase.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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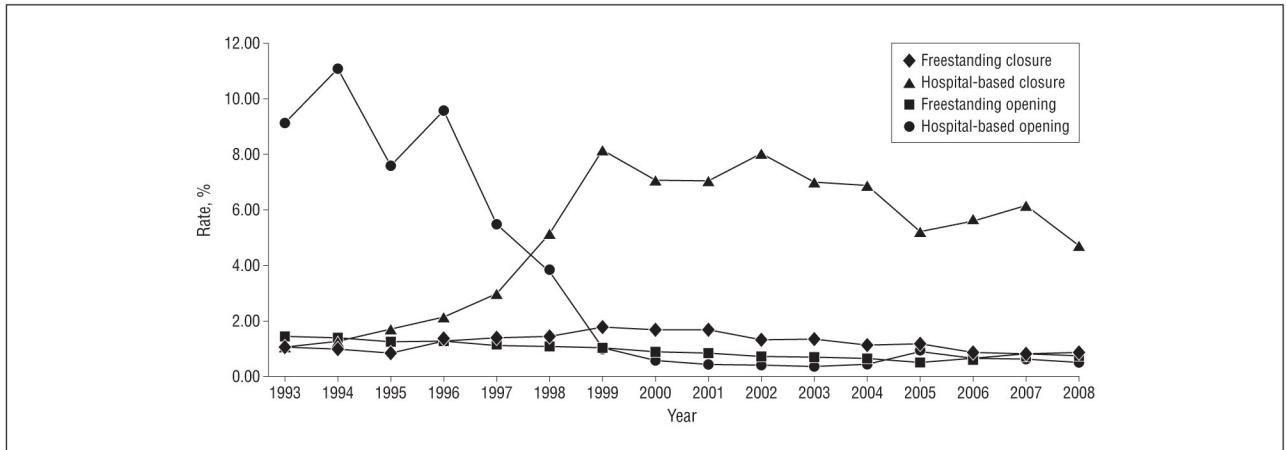
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**Figure 1.**

Annual rates of nursing home closures and openings from 1993 through 2008.

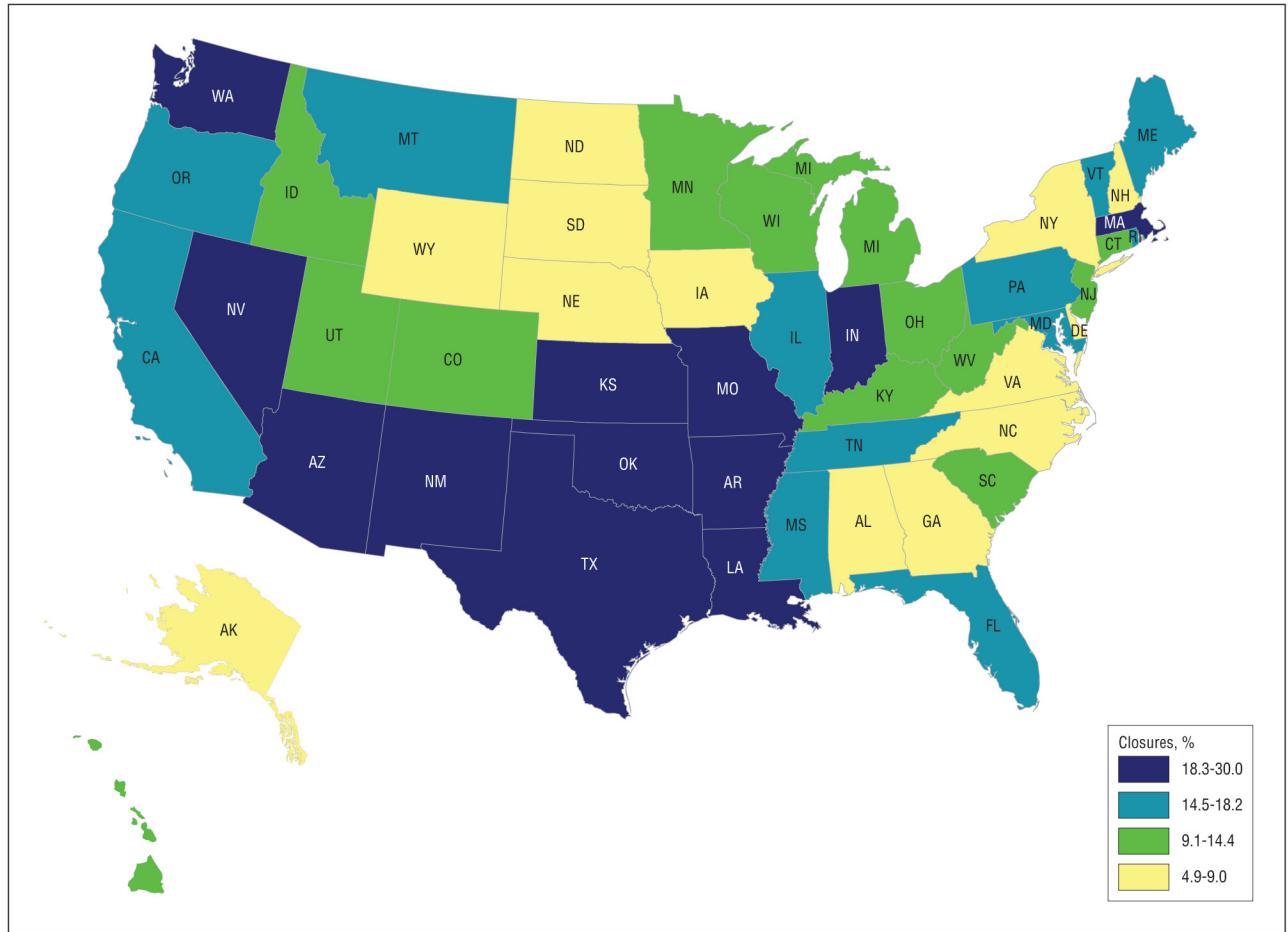


Figure 2.
Cumulative rate of nursing home closures by state, 1999 through 2008.

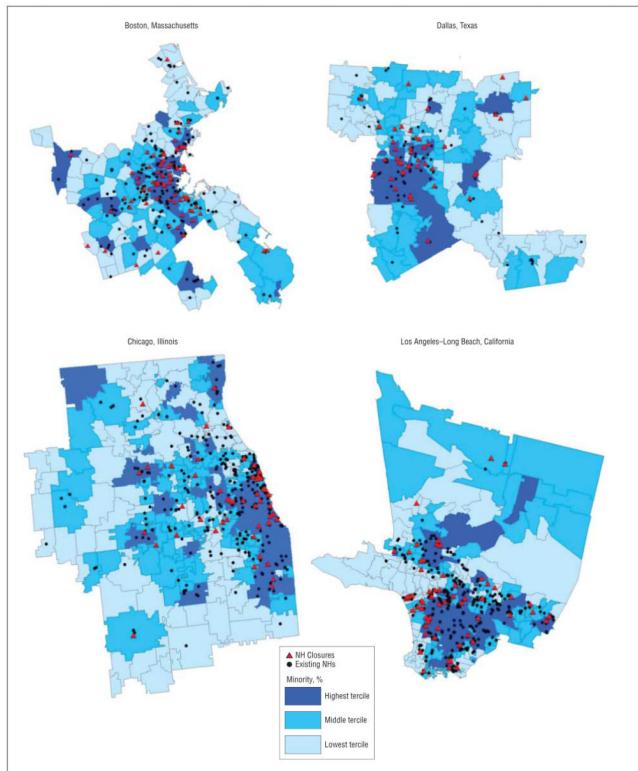


Figure 3.

Spatial clustering of nursing home (NH) closures from 1999 through 2008 across zip codes in 4 selected metropolitan statistical areas.

Cumulative Rate of Nursing Home Closures, 1999–2008, at National, Regional, and MSA Levels^a**Table 1**

Geographical Unit	All Facilities		Freestanding		Hospital Based	
	Closures	Total No.	Closures	Total No.	Closures	Total No.
National	2902 (15.9)	18 259	1776 (11.1)	15 998	1126 (49.8)	2261
Rural	766 (13.6)	5624	502 (10.4)	4804	264 (32.2)	820
Urban	2136 (16.9)	12 635	1274 (11.4)	11 194	862 (59.8)	1441
Northeast						
Boston, MA-NH PMSA	440 (14.1)	3122	301 (10.7)	2822	139 (46.3)	300
Philadelphia, PA-NJ PMSA	87 (24.6)	354	60 (18.7)	321	27 (81.8)	33
Pittsburgh, PA MSA	54 (18.8)	288	30 (11.8)	255	24 (72.7)	33
Providence-Fall River-Warwick, RI-MA MSA	30 (19.5)	154	8 (6.6)	122	22 (68.8)	32
Worcester, MA-CT PMSA	21 (14.3)	147	17 (12.1)	141	4 (66.7)	6
Midwest						
Chicago, IL PMSA	17 (23.0)	74	15 (21.1)	71	2 (66.7)	3
St Louis, MO-IL MSA	858 (14.4)	5968	582 (10.9)	5319	276 (42.5)	649
Indianapolis, IN MSA	49 (12.5)	391	21 (6.1)	346	28 (62.2)	45
Cleveland-Lorain-Elyria, OH PMSA	47 (21.6)	218	29 (15.1)	192	18 (69.2)	26
Kansas City, MO-KS MSA	39 (27.7)	141	30 (23.3)	129	9 (75.0)	12
Tampa-St Petersburg-Clearwater, FL MSA	35 (17.5)	200	22 (12.6)	175	13 (52.0)	25
South						
Dallas, TX PMSA	35 (23.3)	150	15 (11.9)	126	20 (83.3)	24
Houston, TX PMSA	1122 (17.9)	6284	636 (11.6)	5474	486 (60.0)	810
New Orleans, LA MSA	48 (29.3)	164	24 (17.4)	138	24 (92.3)	26
Oklahoma City, OK MSA	41 (28.3)	145	17 (14.9)	114	24 (77.4)	31
West						
Los Angeles-Long Beach, CA PMSA	35 (45.5)	77	18 (31.6)	57	17 (85.0)	20
Phoenix-Mesa, AZ MSA	34 (36.2)	94	22 (27.2)	81	12 (92.3)	13
Seattle-Bellevue-Everett, WA PMSA	33 (21.0)	157	16 (11.8)	136	17 (81.0)	21
San Francisco, CA PMSA	482 (16.7)	2885	257 (10.8)	2383	225 (44.8)	502

Geographical Unit	All Facilities		Freestanding		Hospital Based	
	Closures	Total No.	Closures	Total No.	Closures	Total No.
Across all MSAs, mean (SD) (n=323)	6 (10) (15.4 [10.9])	38 (54)	4 (6) (10.0 [9.4])	33 (48)	3 (5) (54.2 [38.6])	4 (7)

Abbreviations: MSA, metropolitan statistical area; PMSA, primary MSA.

^aUnless otherwise indicated, data are number (percentage) of closures.

Table 2

Cumulative Rate of Nursing Home Closures and Beds Closed, 1999–2008, by Zip Code Level Concentration of Minority Populations and Poverty

Zip Code Percentage Quartiles ^a	Facilities Closed		Net Loss of Beds, No. (%) ^b	Total Facilities, No.
	No. (%)	Relative Risk (95% CI)		
Freestanding				
Blacks				
1	283 (9.9)	1 [Reference]	-9458 (-4.1)	2845
2	337 (8.4)	0.84 (0.72–0.98)	-5255 (-1.2)	4027
3	539 (11.6)	1.17 (1.02–1.34)	-17 026 (-3.2)	4650
4	613 (13.7)	1.38 (1.21–1.58)	-36 962 (-6.9)	4460
Hispanics				
1	314 (9.4)	1 [Reference]	-11 684 (-3.7)	3346
2	385 (9.8)	1.05 (0.91–1.21)	-13 876 (-3.4)	3913
3	494 (11.9)	1.27 (1.11–1.45)	-20 769 (-4.4)	4137
4	560 (12.8)	1.37 (1.20–1.56)	-21 634 (-4.3)	4367
Poverty rate				
1	300 (7.8)	1 [Reference]	4747 (1.1)	3866
2	386 (9.7)	1.26 (1.09–1.45)	-10 682 (-2.6)	3961
3	457 (11.1)	1.43 (1.24–1.64)	-17 025 (-4.0)	4117
4	627 (15.6)	2.01 (1.76–2.29)	-45 683 (-10.3)	4025
Hospital-Based				
Blacks				
1	109 (26.0)	1 [Reference]	-2600 (-14.7)	419
2	224 (43.9)	1.69 (1.40–2.04)	-5176 (-21.3)	510
3	387 (60.7)	2.33 (1.96–2.77)	-10 350 (-41.6)	638
4	390 (57.8)	2.22 (1.87–2.64)	-9438 (-28.6)	675
Hispanics				
1	168 (35.4)	1 [Reference]	-3438 (-16.8)	474
2	245 (46.9)	1.32 (1.14–1.54)	-5776 (-25.5)	522
3	279 (50.8)	1.43 (1.24–1.66)	-7395 (-28.7)	549
4	412 (60.8)	1.71 (1.50–1.96)	-10 797 (-35.8)	678
Poverty rate				
1	165 (51.2)	1 [Reference]	-5139 (-28.5)	322
2	248 (45.2)	0.88 (0.77–1.01)	-5256 (-24.3)	549
3	305 (46.3)	0.90 (0.79–1.03)	-7389 (-25.2)	659
4	391 (55.1)	1.07 (0.95–1.22)	-9762 (-31.6)	710

Abbreviation: CI, confidence interval.

^aAs quartile number increases, percentage of minority population or poverty rate increases.

^bNet number of lost beds is estimated by newly added beds minus closed beds cumulatively over the 10-year period 1999 through 2008. The denominator for the percentage of net lost beds includes all ever-existing beds over the period within each stratum.

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RESEARCH ARTICLE

State Regulatory Enforcement and Nursing Home Termination from the Medicare and Medicaid Programs

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Objectives. Nursing homes certified by the Medicare and/or Medicaid program are subject to federally mandated and state-enforced quality and safety standards. We examined the relationship between state quality enforcement and nursing home terminations from the two programs.

Study Design. Using data from a survey of state licensure and certification agencies and other secondary databases, we performed bivariate and multivariate analyses on the strength of state quality regulation in 2005, and nursing home voluntary terminations (decisions made by the facility) or involuntary terminations (imposed by the state) in 2006–2007.

Principal Findings. Involuntary terminations were rarely imposed by state regulators, while voluntary terminations were relatively more common (2.16 percent in 2006–2007) and varied considerably across states. After controlling for facility, market, and state covariates, nursing homes in states implementing stronger quality enforcement were more likely to voluntarily terminate from the Medicare and Medicaid programs (odds ratio = 1.53, $p = .018$).

Conclusions. Although involuntary nursing home terminations occurred rarely in most states, nursing homes in states with stronger quality regulations tend to voluntarily exit the publicly financed market. Because of the consequences of voluntary terminations on patient care and access, state regulators need to consider the effects of increased enforcement on both enhanced quality and the costs of termination.

Key Words. Nursing home regulation, Medicare and Medicaid, termination, state variation

Nursing home services are largely paid for by public insurances and are regulated by the federal and state governments (Walshe and Regulating 2001; Harrington, Mullan, and Carrillo 2004). In 2007, the annual cost of care provided to the nation's 1.6 million elderly and disabled nursing home patients

was U.S.\$131 billion, of which 60 percent was paid for by the Medicare and Medicaid programs (Hartman et al. 2009). In order to be eligible for public payment under the two programs, nursing homes must comply with the minimum quality and safety standards set forth by federal legislations. It is estimated that over 95 percent of all homes are Medicare/Medicaid certified. A recent study reported that between 1996 and 2005, approximately 11 percent of a longitudinally tracked group of facilities terminated from Medicare and Medicaid (Zinn et al. 2009).

Involuntary termination from federal certification is an important tool used by state regulators to enforce federal quality standards. For nursing homes, termination from certification means that they cannot receive Medicare or Medicaid reimbursement, which likely leads to financial strains. After termination from certification, a facility may be sold to a new owner or closed entirely, and its Medicare and Medicaid residents would need to be moved to another nursing home unless the facility is sold. If the facility ultimately closes, all residents, irrespective of payer source, will be displaced. Transfer of residents to another nursing home entails a burden on the family, which needs to identify an alternative arrangement, and may place residents at risk for adverse health consequences due to changes in environment, caregivers, and service routines (Friedman et al. 1995; Capezuti et al. 2006). On a macrolevel, the closure of a facility shrinks the supply of nursing home beds in the community, and it may affect access to care in areas of limited supply. In contrast, evidence suggests that nursing homes with poor quality of care or lower occupancy rate are more likely to terminate (either voluntarily or involuntarily) (Angelelli et al. 2003; Zinn et al. 2009) and ultimately close (Castle 2005; Castle et al. 2009). Therefore, termination from federal certification may help remove poorly performing and less efficient facilities from the market and increase the overall performance of the industry.

Because of concerns about possible service disruptions and the potential political advocacy power of the nursing home industry in shaping state regulations and politics (Kronebusch 1997), state regulators use enforced terminations as a “policy of last resort”—many states do not impose involuntary

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terminations at all and others impose them sparingly. Table 1 shows the number and percent of involuntary terminations by state in 2006–2007. Thirty-two states had no involuntary terminations. The other 18 had between one and eight, with the highest number of states, seven, having only one enforced termination in this period.

However, nursing homes may choose to voluntarily terminate from the Medicare and Medicaid programs (Angelelli et al. 2003). Indeed, voluntary terminations are more common than involuntary terminations. During the same period of 2006–2007, there were 353 voluntary terminations nationwide compared with only 47 involuntary terminations. And unlike involuntary terminations, voluntary terminations are widespread, with only five states having had none in this period (see Table 1). Yet the consequences of voluntary terminations (e.g., resident relocation and service disruptions) tend

Table 1: Nursing Home Terminations in 2006–2007 and State Regulatory Stringencies in 2005

State	Number of Facilities	Voluntary Termination 2006–2007		Involuntary Termination 2006–2007		Stringency Index 2005
		Number	%	Number	%	
AL	234	1	0.43	2	0.85	3.06
AK	15	0	0.00	0	0.00	1.25
AR	244	7	2.87	0	0.00	1.91
AZ	138	3	2.17	0	0.00	3.33
CA	1,333	32	2.40	8	0.60	–0.98
CO	217	5	2.30	0	0.00	2.64
CT	246	3	1.22	0	0.00	4.89
DC	20	2	10.00	0	0.00	5.77
DE	45	1	2.22	0	0.00	–1.24
FL	693	10	1.44	1	0.14	–2.29
GA	365	1	0.27	3	0.82	–1.60
HI	48	3	6.25	0	0.00	–3.68
IA	462	5	1.08	2	0.43	–1.91
ID	81	3	3.70	0	0.00	3.66
IL	825	11	1.33	1	0.12	–0.27
IN	533	16	3.00	1	0.19	1.93
KS	366	9	2.46	2	0.55	5.45
KY	300	5	1.67	3	1.00	–2.64
LA	312	17	5.45	1	0.32	1.38
MA	463	13	2.81	1	0.22	–0.83
MD	238	5	2.10	0	0.00	–2.29

continued

Table 1. *Continued*

<i>State</i>	<i>Number of Facilities</i>	<i>Voluntary Termination 2006–2007</i>		<i>Involuntary Termination 2006–2007</i>		<i>Stringency Index 2005</i>
		<i>Number</i>	<i>%</i>	<i>Number</i>	<i>%</i>	
ME	120	0	0.00	0	0.00	-1.76
MI	434	6	1.38	4	0.92	1.07
MN	409	8	1.96	0	0.00	-1.02
MO	533	7	1.31	4	0.75	-0.36
MS	209	4	1.91	0	0.00	-2.56
MT	99	5	5.05	0	0.00	0.33
NC	428	4	0.93	1	0.23	-1.79
ND	83	0	0.00	0	0.00	-2.30
NE	227	2	0.88	0	0.00	-1.66
NH	82	2	2.44	0	0.00	1.92
NJ	374	7	1.87	0	0.00	-1.62
NM	76	2	2.63	0	0.00	3.87
NV	48	0	0.00	0	0.00	-0.47
NY	668	8	1.20	0	0.00	-2.09
OH	993	31	3.12	0	0.00	-2.01
OK	359	23	6.41	1	0.28	1.53
OR	141	2	1.42	0	0.00	4.22
PA	734	11	1.50	1	0.14	-2.68
RI	92	4	4.35	0	0.00	-4.21
SC	180	6	3.33	0	0.00	1.71
SD	111	1	0.90	0	0.00	-2.70
TN	334	7	2.10	6	1.80	-1.07
TX	1,196	41	3.43	3	0.25	-0.29
UT	96	4	4.17	0	0.00	-1.61
VA	283	1	0.35	2	0.71	-1.23
VT	41	1	2.44	0	0.00	1.38
WA	250	6	2.40	0	0.00	-1.01
WI	403	7	1.74	0	0.00	2.86
WV	133	1	0.75	0	0.00	-2.62
WY	39	0	0.00	0	0.00	-1.52
Overall	16,353	353	2.16	47	0.29	0.00

Note. Higher stringency index stands for stronger state quality enforcement.

to be the same as in the case of state-imposed terminations.

The implications for resident care, quality, and local access warrant an investigation of the causes for termination, and in particular the role that state policy and regulations play in encouraging voluntary terminations. In this paper, we present a heuristic model explaining the way state policy affects nursing home decisions to leave the Medicare and Medicaid programs, and

we examine empirically the evidence for these decisions. It is important to note that while the majority of terminated facilities eventually close (as the data presented in "Discussion" suggest), termination is not synonymous with closure. Rather, as has been shown for acute care hospitals (Zajac and Shortell 1989; Meyer, Brooks, and Goes 1990; Alexander, D'Unno, and Succi 1996), termination or substantial reduction of public funding creates a strong environmental jolt that has profound impacts on facilities' operations and financing and is, therefore, likely to increase the likelihood of closure. When undertaken voluntarily, termination from public certification is a crucial decision made by the current management of the nursing home. Whether undertaken voluntarily or not, it is likely a precursor to further major business decisions which would change the nature of the organization and which may include either closure, selling the facility to another owner, or changing a market niche to serving exclusively private-pay patients.

NURSING HOME DECISIONS TO VOLUNTARILY TERMINATE FROM THE MEDICARE AND MEDICAID PROGRAMS

We consider nursing home termination decisions in a neoclassical economic framework. Approximately two-thirds of nursing homes are for-profit and thus can be assumed to make decisions designed to maximize profits given the market and regulatory constraints that they face. The objectives driving the operation of nonprofit private facilities are less clear and are likely to be heterogeneous. Some may be "for-profits in disguise," that is, actually striving to maximize profit despite their nonprofit status (Weisbrod 1988). Others may maximize quality or services to a population with a particular religious affiliation. All the private nonprofits are, however, bound by a break-even constraint as well as the same market and regulatory constraints that for-profit facilities face.¹ Therefore, the responses of facilities of different ownerships to market and regulatory constraints, while different in magnitude, are in the same direction. Thus, in the theoretical discussion below we do not distinguish between nursing homes of different ownership types.²

We expect that the decision to voluntarily terminate from the Medicare and Medicaid programs would be reached by a nursing home because it would conclude that it is financially more advantageous than to continue to participate in these programs. The benefits to participation are access to

Medicare postacute care patients, to Medicaid long-term care patients, and to the attendant revenues that they generate.

Medicare patients are those who are admitted following a hospital stay and require rehabilitation and skilled nursing care. They are generally considered attractive because the Medicare payment rate is relatively high (Troyer 2002; Grabowski 2007). They are typically more expensive than long-term care patients, and the Medicare reimbursement rate recognizes that. Many nursing homes offer specialized nursing and medical services to attract these patients.

Medicaid patients, who are long-term, custodial care patients, are much less desirable from a financial perspective. Because Medicaid payment rates are typically much lower than the corresponding private-pay rates, facilities that can attract private-pay patients tend to prefer them. However, most facilities cannot fill their long-term care beds with private-pay patients only, and the question that they face typically is not whether to evade Medicaid patients altogether, but rather at what level of payer mix to operate, recognizing that many of those admitted as private pay will “spend-down” their assets during their stay and will become Medicaid patients. Thus, the benefit of participation in the Medicaid program is not only the revenues generated by Medicaid patients but also access to private-pay patients who anticipate “spending-down” to Medicaid sometime during their stay, and who may have never entered the facility if it were not Medicaid certified.

Participation in the Medicare and Medicaid programs also entails costs, such as administrative costs due to various reporting requirements. In particular, participation requires meeting the quality and safety standards mandated by the federal government and enforced by each state. Nursing homes are subject to an annual inspection (referred to as “survey”) in which a multidisciplinary team of surveyors inspects the facility’s compliance with a large (several hundred) number of standards and issues deficiency citations if the standards are not met. Cited deficiencies can be followed by more severe sanctions, including monetary penalties, repeated surveys, forced change of management, and involuntary termination from the Medicare and Medicaid program. In addition, citations are available to the public through federal and state quality report cards (Angelelli et al. 2003); thus, they can influence the demand for the facility (i.e., as a result of better-informed consumer choices) and increase market competition based on quality.³

Statistics show that the vast majority of nursing homes (92 percent in 2006) have at least one deficiency citation in any given year (Centers for Medicare and Medicaid 2007) and on average have 7.1 deficiencies, indicating

that most nursing homes find it economically more attractive to maintain a level of quality that is consistent with noncompliance with at least some standards. This suggests that compliance with the quality regulation component of the Medicare and Medicaid programs is costly.

This also suggests that for the majority of nursing homes the optimal operating point, that is, the point of balance between the costs of compliance with quality standards and the benefits of participation in Medicare and Medicaid, was achieved at a level of less than full compliance. For some nursing homes (about 1 percent annually, see Table 1), the costs may exceed the benefits, leading them to the decision of voluntary termination.

The balance point, which determines voluntary termination may depend on facility-specific factors related to organizational objectives, efficiency of operation, and ability to compete in the marketplace. It may also depend on characteristics of the market where the facility operates. For example, nursing homes in more competitive markets may face more price stress and may be more likely to have voluntary terminations than other homes.

In particular, our focus in this paper is the hypothesis that differences in the stringency of state quality regulations and enforcement have an impact on the voluntary termination decisions of nursing homes. Prior studies showed that states varied substantially in their oversight process and sanction approaches, both in terms of regulatory inputs such as state budgets and surveyor training and staffing, and in terms of outputs such as the threshold for issuing citations and determining the severity and scope of violations, and the stringency of imposed sanctions on noncompliant facilities (Harrington and Carrillo 1999; Walshe and Harrington 2002; Harrington, Mullan, and Carrillo 2004). Walshe and Harrington (2002) reported that in 2000, state budgets funding the survey process ranged from U.S.\$94 to U.S.\$770 per nursing home bed, and surveyor staff ranged from 1 full-time equivalent (FTE) per 102 beds to 1 FTE per 2,790 beds. In addition, Harrington, Mullan, and Carrillo (2004) found that the average number of deficiencies cited per facility ranged from 2.0 to 11.4 across states, and the total number of civil monetary penalties (CMPs) issued to noncompliant facilities varied similarly.

This interstate variation in quality enforcement may reflect states' idiosyncrasy and propensity to regulate, and their varied abilities to identify serious care problems and enforce sanctions during annual inspections (U.S. Government Accountability Office 2008). In addition, states have discretion to set their own standards of care that are higher than those coded by federal legislations. Harrington, Mullan, and Carrillo (2004), for example, have shown that the application of state regulations tends to be determined by state

political environment, state-level supply and competition of nursing home services, and related state policies such as Medicaid reimbursement rate. As a result, the costs of participating in the Medicare and Medicaid programs that arise due to meeting these standards, or, alternatively, due to choosing not to meet the standards and hence face deficiency citations and their sequela, vary across states. We hypothesized that nursing homes are more likely to voluntarily terminate from the Medicare and Medicaid programs when they operate in states with more stringent regulatory programs.

METHODS

Data

We used the National Online Survey, Certification, and Reporting (OSCAR) data to obtain information on facility termination status (whether terminated and type of termination) in 2006 and 2007. Other facility characteristics were obtained from the OSCAR in 2005. Although with limitations, the OSCAR data are generally considered reliable and accurate, and widely used in nursing home policy analyses (Grabowski 2007).

We linked the nursing home database with (1) data on state quality regulations obtained from a survey of state agencies (described below); (2) linked Medicare enrollment file and nursing home Minimum Data Set that defined the market boundary for each facility; (3) U.S. census data; (4) the CMS area wage index; and (5) state Medicaid reimbursement rates in 2004 as recently reported (Grabowski, Zhanlian, and Mor 2008).

State Enforcement Stringency as a Key Explanatory Variable

Following Harrington, Mullan, and Carrillo (2004), we conducted a structured survey of all states' licensing and certification agency directors to collect data on the number, type, and distribution of federal and state deficiencies, and federal and state CMPs issued in 2005. Although the OSCAR contains deficiencies according to federal standards, it generally does not contain information on CMPs according to state standards of care. Previous studies have shown that a number of the most enforcement-oriented states issue their own state deficiencies and CMPs in addition to federal penalties. Therefore, without a survey to collect both federal and state data, stringency of state regulations would be underestimated in the most enforcement-oriented states.

The survey data were used to develop a state regulatory stringency index described in Harrington and colleagues, as follows: The composite "stringency"

index was scored and standardized according to five measures of state quality enforcement and sanctions: (1) average number of deficiencies issued per facility, (2) percent of facilities with no deficiencies, (3) percent of facilities with a deficiency at G level or higher (actual harm or serious jeopardy to residents), (4) percent of facilities with substandard care, and (5) average number of CMPs issued per facility. Harrington and colleagues showed that the derived index largely captured states' propensity to quality enforcement that tended to be determined by the unique political, economic, and market conditions in each state.

Facility, Market, and State Covariates

Based on prior literature, we included in multivariate analyses a set of facility-, market-, and state-specific covariates hypothesized to affect facility's termination decisions (Angelelli et al. 2003; Castle 2005; Castle et al. 2009; Zinn et al. 2009). Facility-level covariates included the excess number of health-related deficiency citations a nursing home received in 2005, occupancy rate, total number of residents, proportion of Medicare residents, proportion of Medicaid residents, and whether the facility is chain affiliated, for-profit, or hospital-based (Angelelli et al. 2003; Castle 2005; Castle et al. 2009; Zinn et al. 2009). Because of state variations in issuing citations, we defined the excess number of health-related deficiency citations as the difference between the number of a facility's health-related deficiency citations and the state average number of health-related citations issued to all nursing homes in the state. In this way we controlled for the within-state variation of facility quality when estimating the independent impact of state regulatory stringency on termination.

The market for each nursing home was defined based on patterns of new admissions during 2005. For methodological details, see Zwanziger, Mukamel, and Indridason (2002) and Mukamel, Spector, and Bajorska (2005). Briefly, we used the zip code of patient residence in the year before nursing home admission (obtained from the Medicare enrollment file) to define market boundaries, where the core market of a facility included the zip code areas that together made up 70 percent or more total admissions. The remaining 30 percent of admissions were not used to define the market because based on our empirical analyses, they tended to come from a large number of zip codes, with each contributing only one or a few admissions.

We then defined market-level covariates that first included a measure of market competition based on the Herfindahl-Hirschmann Index (HHI). The

HHI was first calculated as the sum of squared shares of new admissions to all nursing homes in a zip code and then aggregated to the market level. Market competition was defined as 1-HHI, ranging from 0 (no competition or monopoly) to 1 (perfect competition). Two exogenous demand variables included in the analyses were percent of older population (≥ 75 years) in the market and percent of women in labor force in the market (Nyman 1985); and an exogenous supply variable included in the model was the CMS hospital wage index aggregated at the market level (a measure of local labor price). These demand and supply measures have been shown to affect nursing home operational characteristics such as cost of care (Mukamel, Spector, and Bajorska 2005), quality (Cohen and Spector 1996; Grabowski and Hirth 2003), resource utilization (Cohen and Spector 1996), and staff turnover (Mukamel et al. 2009) above and beyond market competition, and thus may shift facility decisions of market exit.

We identified two state-level covariates as state policy controls. The state Medicaid reimbursement rate was obtained from a previous report by Grabowski, Zhanlian, and Mor (2008), who showed that the payment rate varied considerably across states. State Medicaid payment rate was expected to determine the financial status—and thus market entry/exit behaviors—of nursing homes, given the fact that Medicaid is the dominant payer of institutional long-term care (Hartman et al. 2009). State generosity of Medicaid payment may also influence state design and applications of quality regulations (Harrington, Mullan, and Carrillo 2004). For example, where Medicaid services are reimbursed at a lower rate, state quality inspectors may be more lenient to issue deficiency citations and impose sanctions, recognizing the tough financial situation faced by facilities in the state.

Another state-level policy control was the minimum level of licensed nurse hours per resident day mandated by each state (Harrington, Swan, and Carrillo 2007). The state nurse-staffing standard was obtained from the survey of each state. It was expected that state minimum staffing standard would be correlated with nursing home profitability and thus the likelihood of market exit, because the mandated staffing level tended to increase input cost of patient care (Harrington, Swan, and Carrillo 2007).

STATISTICAL ANALYSIS

We performed multivariate analysis of voluntary terminations focusing on for-profit and nonprofit nursing homes. We excluded the approximately 900

government-owned facilities from the analysis because their market incentives tend to differ substantially from those of nursing homes of private owners. Logistic regression models were estimated where the dependent variable equaled 1 if the facility voluntarily terminated in 2006–2007 and 0 if it did not. The key independent variable was the state stringency index in 2005, which for ease of interpretation, was retransformed to 1 if the original index > 0 (higher than the national average stringency level) and 0 otherwise. Regression models controlled for the facility, market, and state covariates in 2005 described above, and they accounted for the clustering of nursing homes within states using White (1980) robust standard errors for covariance estimates.

RESULTS

State Variation in Regulatory Stringency

The indexed regulatory stringency was standardized to a mean of 0 and standard deviation of 1. It varied greatly across states (Table 1), ranging from 4 or higher in states such as Connecticut, Washington, DC, Kansas, and Oregon, to below – 2.5 in Hawaii, Kentucky, Pennsylvania, Rhode Island, South Dakota, and Wyoming.

Variation in Nursing Home Termination

Nursing home termination also varied substantially across states (Table 1). The national 2-year voluntary termination rate in 2006–2007 was 2.16 percent, with Washington, DC, reporting the highest rate (10 percent), and Alaska, Maine, North Dakota, Nevada, and Wyoming reporting no voluntary termination. State voluntary termination rate was correlated with the state regulatory stringency index (Pearson correlation = 0.27, $p < .05$). Table 2 shows that compared with nursing homes not terminated in 2006–2007, voluntarily terminated nursing homes tended to be smaller, have lower occupancy rate, and be nonchain affiliated, for profit, or hospital based (and thus with higher percentage of Medicare residents). These voluntarily terminating facilities also tended to be located in markets with higher competition and states with lower Medicaid reimbursement rate.

There were only 47 involuntary terminations in 2006–2007, with over 30 states having no facilities involuntarily terminated. State involuntary termination rate did not correlate with state stringency of quality enforcement (Pearson correlation = – 0.04, $p = .76$). Compared with nonterminated

Table 2: Characteristics of Nursing Homes, 2005

Variable	Mean (Standard Deviation)			
	Termination Status in 2006–2007			
	All Nursing Homes (n = 16,353) [†]	Voluntary (n = 353) [†]	Involuntary (n = 47) [†]	Active (n = 15,953) [†]
No. of health-related deficiencies	6.47 (5.58)	6.63 (6.72)	13.06 (7.11)**	6.44 (5.53)
Number of beds	108.40 (74.27)	64.70 (81.82)**	131.62 (68.72)**	109.31 (73.81)
Occupancy rate	0.83 (0.19)	0.68 (0.23)**	0.77 (0.19)**	0.83 (0.18)
Total number of residents	89.62 (59.54)	41.14 (40.70)**	99.44 (57.80)	90.67 (59.45)
Percent of Medicare residents	15.60 (31.08)	34.93 (39.08)**	10.38 (11.98)	15.19 (30.78)
Percent of Medicaid residents	61.77 (37.62)	45.04 (38.75)**	74.45 (20.85)	62.11 (37.54)
Chain affiliation	0.52 (0.50)	0.46 (0.50)**	0.38 (0.49)	0.52 (0.50)
For profit	0.66 (0.47)	0.50 (0.50)**	0.85 (0.36)**	0.66 (0.47)
Hospital based	0.09 (0.28)	0.45 (0.50)**	0.15 (0.36)**	0.08 (0.27)
Market competition (1 HHI)	0.68 (0.21)	0.72 (0.19)**	0.75 (0.12)**	0.68 (0.21)
% Population ≥ 75 years in market	7.18 (2.98)	7.11 (2.60)	5.81 (1.36)**	7.18 (2.99)
% Women in labor force in market	55.16 (7.08)	54.52 (6.42)	55.56 (7.07)	55.17 (7.10)
Wage index in market	0.93 (0.12)	0.93 (0.12)	0.95 (0.12)	0.93 (0.12)
State Medicaid payment rate 2004, U.S.\$	129.28 (26.68)	125.51 (26.82)**	118.38 (21.17)**	129.40 (26.68)
State requirement of minimum licensed nurse hours per resident day	0.38 (0.19)	0.38 (0.18)	0.33 (0.14)	0.38 (0.20)

[†]Sample size may vary slightly for each variable due to missing values.

** $p < .05$ compared with active nursing homes in 2006–2007 based on analysis of variance.

HHI, Herfindahl–Hirschmann Index.

nursing homes, involuntarily terminated nursing homes tended to have more deficiency citations and to be larger, for profit, or hospital based (Table 2).

Determinants of Voluntary Termination

Table 3 shows that in multivariate analyses, variables expected to be associated with increased ability to generate revenues and profits—such as increased occupancies, higher patient census, and higher Medicare coverage—lowered the odds of termination; variables that are likely associated with lower revenues and profits, including poor quality measured by excess deficiency citations (which lowers the residual demand the nursing home faces) and increased competition, increased the odds of termination. Hospital-based

Table 3: Relationship of State Regulatory Stringency in 2005 and Nursing Home Voluntary Termination in 2006–2007

<i>Independent Variable</i>	<i>Odds Ratio</i>	<i>p-Value</i>
Stringency index >0	1.53	.018
Health-related deficiencies (minus state average)	1.06	.000
Occupancy rate	0.46	.021
Total number of residents, by 10	0.74	.000
% of Medicare residents	0.96	.032
% of Medicaid residents	1.01	.010
Chain affiliation	0.93	.656
For profit	0.99	.966
Hospital based	5.26	.000
Market competition (1 HHI)	7.05	.000
% Older population (≥ 75 years) in market >80%	0.72	.054
% Women in labor force in market >60%	0.64	.019
CMS hospital wage index in market	2.25	.252
Medicaid payment rate	1.02	.663
State requirement of minimum licensed nurse hours per resident day	1.28	.554
Number	14,788	
R-squared (pseudo)	0.21	

HHI, Herfindahl-Hirschmann Index.

facilities were also much more likely to terminate, possibly because their per diem cost of care was higher than that in freestanding facilities while the current Medicare prospective payment for skilled nursing care tends not to distinguish between the two types of facilities (Liu and Black 2003; Medicare Payment Advisory Commission 2007). Therefore, under the “uniform” Medicare payment, hospital-based skilled nursing facilities are more likely to lose money. In addition, their existence may depend on how much they help improve the margin of their affiliated hospital (Medicare Payment Advisory Commission 2007), and this precarious financial situation may make them more vulnerable to terminations. The estimated effects of these factors are consistent with findings of recent studies on nursing home terminations and closures (Angelelli et al. 2003; Castle 2005; Castle et al. 2009; Zinn et al. 2009).

After controlling for these covariates, nursing homes in states with stronger regulatory enforcement (stringency indices >0) were 50 percent more likely to voluntarily terminate than nursing homes in other states (odds ratio [OR] = 1.53, $p = .018$). This indicates that state regulatory programs have an impact on the termination decisions made by facilities above and beyond other factors that may affect facility operations.

Sensitivity analyses confirmed that when the original stringency index was included in the model as a continuous variable, the estimated OR = 1.08 ($p = .022$). We also recategorized states into tertile groups where we found that compared with nursing homes in states with *low* regulatory stringency (index < -1.62), nursing homes had an OR = 1.17 ($p = .472$) for voluntary termination if they were in states with *medium* regulatory stringency ($-1.62 <$ index < 1.36), and had an OR = 1.68 ($p = .014$) if they were in states with *high* regulatory stringency (index > 1.36). To test whether nursing home behavior differed by ownership, we repeated the regression analyses on samples stratified by ownership type as follows: for profit, nonprofit, hospital based, freestanding, chain affiliation, and nonchain affiliation. The results were similar to the main results and are available from the author upon request.

DISCUSSION

We found considerable state variations in the stringency with which states apply quality regulations and sanctions and the rate of nursing home voluntary terminations from Medicare/Medicaid programs. Involuntary terminations, those imposed by the state as the ultimate sanction for inadequate care, were rare and occurred in only about one-third of the states in 2006–2007. This study also found an independent effect of state quality enforcement efforts on nursing home voluntary termination decisions, where facilities were more likely to voluntarily terminate from the Medicare/Medicaid program in states with more stringent regulatory enforcement policies, everything else being equal.

While prior studies found that nursing home and market characteristics predicted facility terminations and closures (Angelelli et al. 2003; Castle 2005; Castle et al. 2009; Zinn et al. 2009), this is the first study to show that a facility's voluntary termination decisions are also highly dependent on state overall approaches to regulating quality. As discussed earlier, terminations from the Medicare and Medicaid programs—both voluntary and involuntary—tend to disrupt services for nursing home residents and their families. Clearly, these consequences to resident care are recognized by state regulators who impose involuntary terminations sparingly. Findings in this study, however, suggest that state quality regulations may in another way affect the local supply of nursing home beds by driving facilities' voluntary market exit.

As such, state implementations of quality regulation should be contemplated in terms of both their costs and their benefits. Policy makers have long believed that monitoring and regulating nursing home services is critical to

ensuring quality; broad consensus exists that government oversight of the industry is necessary because nursing home residents are often too frail to act as assertive consumers, and because of the major role that public financing plays in the delivery of nursing home care. As codified in the OBRA 1987, government regulations in the nursing home marketplace are grounded in the belief that effective regulatory enforcement—together with other quality approaches such as market competition—can ensure that nursing homes “attain or maintain the highest practicable physical, mental, and psychosocial well-being of each resident” (Institute of Medicine 1986). Indeed, there is some evidence for regulatory success. Since the OBRA 1987 was adopted, nursing homes have shown decreased uses of physical restraints and antipsychotic medications, decreased rates of pressure ulcers and hospital admissions among long-term residents, and increased staffing levels (Shorr, Fought, and Ray 1994; Garrard, Chen, and Dowd 1995; Mor et al. 1997; Zhang and Grabowski 2004).

However, these quality effects should be weighed against the costs imposed by a more stringent regulatory system (Walshe and Regulating 2001; Walshe and Harrington 2002), which include not only the incremental costs of enforced compliance with service standards but also the costs to local communities and patients who may suffer from disrupted nursing home services. The question we raise is whether the benefits from the increased strength of regulations justify the costs of potential loss of publicly financed beds due to terminations, and where the right balance is.

We caution that we can only raise this issue. We can neither quantify the benefits of stronger quality enforcements, nor the costs they impose. We do note, however, that extensive analyses continue to document ongoing quality and safety shortcomings in nursing facilities, including inappropriate medication use, untreated pains, persistent use of physical restraints (Castle 2002; Jenq et al. 2004; Briesacher et al. 2005), and a recent finding that 20 percent of U.S. nursing homes still operate with severe and dangerous care deficiencies (General Accounting Office 2003). Furthermore, while there certainly are more voluntary than involuntary terminations, the number of voluntary terminations is small, averaging about 1 percent of all nursing homes per year, and there are factors other than regulatory stringency that drive terminations. For example, the recent burgeoning of community long-term care alternatives such as assisted living has decreased the use of institutional services (Gruneir et al. 2007), which may contribute to the overall increased market exits of nursing facilities over time (Castle et al. 2009). Therefore, even if states were to relax their regulatory programs, they would not be able to avert all the terminations that are currently occurring.

One limitation of this study is that we have not addressed entry decisions into nursing home markets. It is likely that the regulatory environment influences not only market exit but new entries or expansions of existing service lines in a facility. In addition, for voluntarily or involuntarily terminated facilities, we could not determine whether they were ultimately closed, sold to another owner, or switched to serving exclusively private patients. However, although these different events may have potentially different implications for service access and quality, termination from public certifications and regulations itself indicates performance failure of the current management (Zinn et al. 2009) and represents a necessary condition and significant threat for financial viability that foreshadows any of these business events. Using 2008 and 2009 OSCAR files, we also confirmed that over 90 percent of terminated facilities were not operated under a different ownership in 2008–2009, which suggests the likelihood that most terminated facilities were eventually closed (although a small number of them could serve private patients only). Finally, our analyses were cross-sectional and could not track longitudinal trend of nursing home terminations, that is, caused by, for example, recent increase of noninstitutional long-term care services (Gruneir et al. 2007) and that may vary across states.

In summary, we found that although involuntary nursing home terminations were rarely imposed in most states, nursing homes in states with stronger quality regulations tend to voluntarily terminate from the Medicare and Medicaid programs. Further research is required to better understand the impact of state regulatory policies on facilities' market entry and exit decisions. Such research would guide policy makers and state regulators as they make choices that determine the nature of the state survey and certification program.

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NOTES

1. Nonprofit facilities receive tax exemptions and may have access to other funds such as donations and grants. But in general, their market and regulatory constraints do not differ from those of for-profit facilities. In addition, another category of nursing homes is government owned (approximately 5 percent of all facilities).

- They were not considered in this study because their organizational objectives are dictated by the local or state governments that own them and their operations are subsidized by public revenues; as a result, the constraints that they face are quite different from those of private facilities.
2. However, in empirical analyses of nursing home terminations, ownership type was included as a covariate given our assumption here that the responses to market and regulatory constraints of for-profit versus nonprofit nursing homes were different in magnitude (but not in direction). We also performed stratified analyses to verify the assumption that the direction of responses is the same.
 3. In addition to the federally mandated quality standards and annual inspections, states have licensure requirements for all nursing homes irrespective of their federal certification status. Because it would require a major effort to identify state regulations, we have focused on the federally mandated (and state-enforced) requirements, which may affect prospective market behaviors.

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Appendix SA1: Author Matrix.

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